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Supplement No. 4 to the Annual Report of the Department of Marine and Fisheries

# FISHERIES STATEMENTS

AND

## INSPECTORS' REPORTS

FOR THE YEAR

1892

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OTTAWA

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# INDEX

TO THE

## SUPPLEMENT No. 4 TO THE ANNUAL REPORT

OF THE

## DEPARTMENT OF MARINE AND FISHERIES

1892.

### INTRODUCTORY REPORT BY THE DEPUTY MINISTER.

	PAGE.
Report on the General Condition and Yield of the Fisheries in 1892.....	v
Remarks on the Fisheries of the different Provinces—	
Nova Scotia.....	vii
New Brunswick.....	viii
Prince Edward Island.....	viii
Quebec.....	ix
Ontario.....	x
Manitoba and North-west Territories.....	x, xi
British Columbia.....	xi
General Recapitulation—Yield and Value of the Fisheries.....	xii
Recapitulation of each Province—Yield and Value of the Fisheries.....	xiv to xix
Recapitulation by Provinces—Value of Vessels, Boats and other Fishing Material for 1892...	vi, xx
Recapitulation of Aggregate Values of Fish caught in Canadian waters from 1870 to 1892 in the respective Provinces.....	xxi
General Table—Value of Fishing Materials, &c., from 1879 to 1892.....	xxii
do Number of Men engaged in Fishing Industry from 1879 to 1892.....	xxiii
Sawdust and pollution of Streams.....	xxiii
Fish-ways.....	xxix
Sea and Inland Fisheries.....	xxix
Sea coast and Inland waters, extent of.....	xxix
Fish-breeding.....	xxx

### PART I.

## APPENDICES.

#### APPENDIX A.—NOVA SCOTIA—

Report of Mr. A. C. Bertram, Inspector of Fisheries for District No. 1, with Synopses of Fishery Overseers' Reports.....	1
Report of Mr. Robert Hockin, Inspector of Fisheries for District No. 2, with Synopses of Fishery Overseers' Reports.....	7
Report of Mr. J. R. Kinney, Inspector of Fisheries for District No. 3, with Synopses of Fishery Overseers' Reports.....	14
Detailed Statistics of the Fisheries of District No. 1, Inspector Bertram.....	16
Recapitulation, District No. 1.....	24
Detailed Statistics of the Fisheries of District No. 2, Inspector Hockin.....	26
Recapitulation, District No. 2.....	36
Detailed Statistics of the Fisheries of District No. 3, Inspector Kinney.....	39
Recapitulation, District No. 3.....	52
Recapitulation of the Total Yield of the whole of Nova Scotia.....	56



PART I.—APPENDICES—*Continued*

	PAGE
APPENDIX B.—NEW BRUNSWICK—	
Report of Captain J. H. Pratt, Inspector of Fisheries for District No. 1, with Synopses of Fishery Overseers' Reports.....	58
Report of Mr. R. A. Chapman, Inspector of Fisheries for District No. 2, with Synopses of Fishery Overseers' Reports.....	64
Report of Mr. J. H. Pratt, Acting Inspector of Fisheries for District No. 3, with Synopses of Fishery Overseers' Reports.....	67
Detailed Statistics of the Fisheries of District No. 1, Inspector Pratt.....	70
Recapitulation, District No. 1.....	72
Detailed Statistics of the Fisheries of District No. 2, Inspector Chapman.....	74
Recapitulation, District No. 2.....	80
Statistics of the Fisheries of District No. 3, Acting Inspector Pratt.....	82
Recapitulation, District No. 3.....	84
Recapitulation of the Total Yield of New Brunswick.....	85, 88
APPENDIX C.—PRINCE EDWARD ISLAND—	
Report of Mr. Edward Hackett, Inspector of Fisheries.....	90
Detailed Statistics of the Fisheries.....	94
Recapitulation of the Total Yield of Prince Edward Island, &c.....	98
APPENDIX D.—QUEBEC—	
Report of Mr. Wm. Wakeham, Officer in charge of the Fisheries Protection Service in the Gulf and Lower River St. Lawrence, with Synopses of Fishery Overseers' Reports.....	99
Synopses of Fishery Overseers' Reports, South Shore, from Cape Chatte to Point Lévis.....	105
Synopses of Fishery Overseers' Reports, North Shore, from Quebec to Bersimis.....	106
Synopses of Fishery Overseers' Reports, from Quebec to Upper Ottawa.....	107
Detailed Statistics of the Fisheries, Gulf Division, Commander Wakeham... ..	110
Recapitulation of the Yield of the Fisheries, &c., Gulf Division.....	128
Detailed Statistics of the Fisheries, South Shore, from Cape Chatte to Point Lévis.....	130
Detailed Statistics of the Fisheries, North Shore, from Quebec to Bersimis... ..	132
Detailed Statistics of the Fisheries, from Quebec to Upper Ottawa.....	134
Recapitulation of the Yield of the Province, exclusive of Gulf Division.....	137
Recapitulation of the Total Yield of the whole Province of Quebec.....	138
APPENDIX E.—MANITOBA AND NORTH-WEST TERRITORIES—	
Report of Mr. Alexander McQueen, Inspector of Fisheries, with Synopses of Reports of Overseers and Guardians.....	140
Recapitulation of Catch.....	145, 146
Report of Mr. F. C. Gilchrist, Inspector of Fisheries, on the Fisheries of the North-west Territories.....	148
Recapitulation.....	152
APPENDIX F.—BRITISH COLUMBIA—	
Report of Mr. John McNab, Inspector of Fisheries.....	153
Statement of Salmon canned in 1892.....	155
Schedule of Vessels in the Fur-Seal Industry, 1892.....	156
Synopses of Fishery Guardians.....	158
Detailed Statistics of the Fisheries.....	160
Recapitulation of the Total Yield and Material, &c.....	162
APPENDIX G.—ONTARIO—	
Synopses of Fishery Overseers' Reports by Divisions.....	164
Detailed Statistics of the Fisheries by Divisions.....	174
Recapitulation of the Total Yield of the Fisheries and Material, &c.....	188
APPENDIX H.—Report on Fish-ways, by Inspector R. Hookin, with illustrations.....	189
APPENDIX I.—SEA AND INLAND FISHERIES—	
Answers to questions by Fishery Officers and others.....	195
Sea Fisheries .....	195
Inland Fisheries.....	245

## PART II.

FISH-BREEDING OPERATIONS.—Report of Mr. S. Wilmot, Superintendent of Fish Culture.  
(Separately Indexed.)



REPORT  
ON THE  
FISHERIES OF THE DOMINION OF CANADA  
FOR THE YEAR 1892.

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To the Honourable

CHARLES H. TUPPER,

Minister of Marine and Fisheries.

SIR,—I have the honour to submit the Fisheries Statements and Inspectors' reports, including the report on fish-breeding operations by the Superintendent of Fish Culture, for the year 1892. These statistical statements being compiled to the end of the calendar year, are necessarily issued at a later date than reports comprising the fiscal year only.

Some of the fishery officers' reports are not so extensive as usual, owing to their having sent in preliminary reports in November last, already published in the annual report of this department.

VALUE OF THE CANADIAN FISHERIES.

The total yield of the fisheries of the Dominion of Canada amounts to \$18,941,171, as follows:—

Nova Scotia.....	\$6,340,724
New Brunswick.....	3,203,922
British Columbia.....	2,849,483
Quebec.....	2,236,732
Ontario.....	2,042,198
Prince Edward Island.....	1,179,856
Manitoba and North-west Territories.....	1,088,254

The above is exclusive of the quantity of fish consumed by the Indian population of British Columbia, which is estimated at over \$3,000,000.

This total aggregate value of nearly *nineteen million dollars* is about the same as in 1891. True, the Maritime Provinces' catch falls short of that of 1891 by over *one million dollars*, but this is compensated by the unexpected increase in the yield of the inland fisheries of the North-west Territories and Ontario. The Gulf division of Quebec is the only deep-sea fishing province actually showing a surplus over the take of the previous year.

## MEN EMPLOYED—CAPITAL INVESTED IN THE FISHING INDUSTRY.

To achieve the above result of fish production, no less than 63,678 men toiled over our extensive waters with fishing implements, etc., representing a capital of \$7,647,835 now invested in the fishing industry of our country as follows:

About 1,000 schooners and steam-tugs of 37,200 aggregate tonnage, valued at over \$2,000,000, were manned by 8,330 sailors, and 55,348 other fishermen using 30,500 boats, valued at over \$1,000,000, fishing 4,500,000 fathoms of nets, worth \$1,475,000, as well as other fishing gear, such as seines, pound and trap-nets, weirs, etc., etc.

The lobster fishing plant alone amounts to \$1,284,821.

## DETAILS.

The following table shows the relative value of the principal kinds of commercial fishes as well as the increase or decrease of each:—

Kinds of Fish.	Amount, 1892.	Increase over 1891.	Decrease from 1891.
	\$ cts.	\$ cts.	\$ cts.
Cod .....	4,063,458	235,750	
Salmon .....	2,242,847		13,401
Herring .....	2,035,630		259,284
Lobsters .....	1,991,829		260,592
Whitefish .....	1,498,523	707,338	
Mackerel .....	1,346,977		622,594
Trout .....	711,112	49,769	
Seals .....	633,119		192,964
Haddock .....	586,524	60,929	
Hake .....	392,191	77,636	
Fish oil .....	359,904	1,236	
Halibut .....	275,207	59,738	
Smelts .....	235,958		41,077
Pike .....	224,253	161,422	
Pollack .....	222,882		20,862
Pickarel .....	188,573	54,443	
Alewives .....	168,179		25,850
Oysters .....	167,659		16,187
Sardines .....	118,213		74,723
Eels .....	103,161	9,760	
Shad .....	99,892	15,606	
Sturgeon .....	90,540	2,751	
Bass .....	48,333	374	
Squid .....	39,176	5,784	
Maskinonge .....	32,475		12,106

The above table shows at a glance which particular branch of the fishing industry prospered, remained stationary, or failed.

Whitefish indicates the most favourable fluctuation, having increased about 100 per cent. This extraordinary catch is chiefly from the North-west Territories, but may be better ascribed to fuller returns now received therefrom, than to a proportional increase of the species.

Cod, haddock and hake have yielded more than last year. The season was an open one, fishing being carried on in some localities till late in December.

A most striking decline of 33 per cent is noticed in the mackerel fishery, especially due to its non-appearance on the western coast of Nova Scotia.



The deficit of 3,600,000 cans in the output of British Columbia salmon, as compared with 1891, is nearly made up by the increased quantity sold fresh from other provinces.

Herring falls short of last year's catch by over a *quarter of a million dollars*. This may be attributed to the failure of the winter herring in New Brunswick side of Bay of Fundy.

The lobster yield is also \$260,000 less than the previous one, which is doubtless due to the exhaustion of certain localities by over-fishing. One may judge of the magnitude of this

#### LOBSTER INDUSTRY.

by the fact that, last season, no less than 626 canneries were in operation on the littoral of our seas, using 768,479 traps and other plant valued at \$1,284,821. The pack, though less than that of 1891, amounted to 12,524,498 lb. cans, besides 6,012 tons disposed of fresh or shipped alive, representing a drain of about 80,000,000 of these crustaceans from our waters during a single season.\*

#### GENERAL REMARKS.

##### NOVA SCOTIA.

A glance at the following table will show an unfavourable result in the last season's fishing operations, in the above-named province. As compared with the previous year, the yield of the fisheries of Nova Scotia shows a deficit of \$670,576. This shortage occurs in the mackerel fishery, which has fallen off over \$700,000 below the catch of 1891. The catch of lobsters also fell short of that of the previous year by over \$150,000. Cod, haddock, pollack and hake fisheries all show slight improvement. The same might be said of the halibut and herring fisheries.

In district No. 1, comprising Cape Breton Island, the number of men engaged in the fishing industry is steadily diminishing, notwithstanding the natural facilities and advantages for the prosecution of deep-sea fishing, which are possessed by them. The opportunities offered of late years for employment at the coal mines or railway construction, etc., has doubtless deterred to a considerable extent the fishermen from embarking in the more venturesome and precarious calling of fishing. The yield in the county of Richmond which in 1891 showed the greatest diminution, this year shows to the best advantage. Mackerel, on the coasts of this district, proved abundant, the catch exceeding that of the previous year by 50 per cent. Cod, herring and lobsters all show a falling off as compared with the yield of 1891.

Induced by through railway communication which has been established with the United States, a new and promising industry is being inaugurated in the smelt fishery. In fact, Cape Breton could now easily develop a fresh fish trade during the winter months, with the principal American and Canadian cities.

It may be stated that in the central district a general decline of 17 per cent has occurred, largely attributable to the failure of the fall mackerel fishery in Halifax county. The cod family has yielded less by 24 per cent, when compared with the take of 1891. In dealing with this fishery, Inspector Hockin dwells at considerable length upon the spawning of the cod and other sea fishes, quoting several authorities thereon, which may be read with interest.

\*This is based on allowing six lobsters to a can, and  $2\frac{1}{2}$  lbs. for average weight of shell lobsters.

In the western district a decrease of \$347,000 is reported, ascribed solely to the failure of mackerel, the catch falling short of that of the previous year by over 40,000 barrels. This incident remains unexplained, and the fishery officers are unable to account for the fact, otherwise than by stating that mackerel did not visit their coast this season.

#### NEW BRUNSWICK.

While the fisheries of this province last year showed a surplus of over \$800,000, this season's catch reveals a decrease of \$367,000. This is due to a falling off in smoked herring, sardines and smelts. The other kinds of fish held their own and rendered an average return.

In district No. 1 (Charlotte county coast) herring fishing proved almost a failure. The usual run of large winter herrings did not strike in the Bay of Fundy. Prices obtained for sardines and smoked herrings ruled very low.

The discrepancy in value for these articles alone exceeds a quarter of a million dollars when compared with the result in 1891. For that year the schedule prices were rather high, as the boxes of smoked herring were smaller than in other localities. However, this has been remedied this year by returning all the smoked fish in pounds instead of boxes. It is credibly stated by the officers that owing to the efficiency of the passes which have been placed in the St. George's Falls, salmon are known to have ascended that stream for the first time, much to the gratification of settlers, who anticipate future benefits therefrom.

In district No. 2 (Northumberland Straits and Baie des Chaleurs) a slight improvement is noticeable in almost every variety of fish except smelts and lobsters. Owing to the unusually open season which prevented the ice from taking on the streams of the Miramichi district, the smelt bag-net fishery could not be prosecuted until a comparatively late date. This resulted in a falling off in the yield of smelts alone exceeding three-quarters of a million pounds. It is gratifying to observe that mackerel are becoming more plentiful on this part of the coast, and it is to be hoped that the prohibition of purse-seines within the three mile-limit will materially assist in keeping up the supply. The quantity of oysters raked exceeds that of the preceding year. The winter prohibition came in good time, as much injury was being done to the already exhausted beds of Kent county by raking through the ice.

In the inland district, No. 3, the fishing operations resulted in about an average yield. A slight falling off of \$20,000 in the total value is attributed to a less vigorous prosecution of the fisheries rather than to the scarcity of fish. Line fishermen appear to have met with poor success. There are indications of a steady increase in the number of salmon frequenting the upper streams. Doubtless this is due to the better protection afforded by vigilant guardians. The appearance of salmon in increasing numbers in the upper waters of the rivers invariably attracts pleasure seekers from whom considerable benefit is derived by the settlers from necessary assistance and other expenditure. Improvement is also reported in the trout supply.

#### PRINCE EDWARD ISLAND.

The falling off in the yield of the fisheries of this province amounts to only \$58,887 as compared with the total value of 1891. This decline is more than accounted for in the single item of lobsters, the pack of which is nearly one million cans short of that of

the preceding year, although still above the average, These crustaceans are steadily diminishing in size ; at times canneries were running with undersized fish. This, coupled with the unreasonable increase of traps, neutralized the good effect a short season might have had. Herring and mackerel were plentiful. Although the column in which the result of herring is indicated, shows a decrease of 50 per cent, the take of bait (principally herring) gives an increase of 150 per cent, as compared with the previous year. Besides these, several hundred barrels were supplied to United States and Canadian bankers for use as bait, which are not included in the returns at all. A remarkable feature in the increase of mackerel is that it was confined to certain parts of the coast, while in other sections in which this fish have formerly been found in great abundance were almost deserted. This is ascribed to excessive netting and purse-seining in the latter localities, which are now avoided by the fish, while no abuses have ever existed in the former. The prohibition of purse-seines within the three-mile limit was favourably received by all parties interested in the protection of this valuable industry.

The decline in the oyster fishery was counterbalanced by the increased prices obtained towards the end of the season. Richmond Bay possesses, without doubt, the richest oyster beds to be found around the Island. New areas are worked every year, and notwithstanding the incessant raking of this excellent bivalve, this bay, from its larger area, seems better able to withstand excessive operations than many smaller ones. Attention is called to the regrettable destruction and waste of immature oysters which are refused by shippers and thrown away to rot, while they might have been saved to mature if returned to the water by the fishermen at the time of capture. Upon the completion of the examination of the oyster beds of the Maritime Provinces at present in progress, it is expected that regulations can be devised which among other things will obviate this evil.

#### QUEBEC.

The tables of this province show a gratifying increase of nearly a quarter of million dollars over those of last year, which in turn indicated a surplus in value of \$400,000 over 1890. This satisfactory result is chiefly due to the open season experienced on the north shore of the Gulf division, affording a better opportunity for the prosecution of the fishing business ; cod, lobsters and mackerel especially making a good showing. As cod were plentiful and fishing began early and was continued far in December, it followed that the yield should be correspondingly large. In fact it proved to be the largest ever made in this division, reaching 245,000 cwts.

Commander Wakeham reports having seen a school of cod in Sheldrake Bay, extending over a mile to the shore. So dense was this solid mass of fish that a small boat could only with difficulty be rowed ashore. Attempts at sounding showed them to reach the bottom. Several instances of a similar nature, though of less extent, were reported from neighbouring quarters. The insignificance of a season's catch, as compared with such a mass of fish, is striking.

The greater portion of the mackerel fishing of this division is done at the Magdalen Islands. These fish, however, were observed in greater numbers in Bay des Chaleurs than for years past.



Lobsters are holding their own in size as well as in quantity. In fact since 1889 there has been a steady improvement. The output from the canneries exceeds that of the previous year by 167,000 cans.

The sealing fleet again failed to secure even an average catch. This failure cannot be ascribed to the scarcity of seals, as the Newfoundland sealers with steamers have always done fairly well. The Québec fleet consists of small schooners not so well adapted to successful operations, not always being able to reach the seals. A special officer has been located at Long Point to protect the sedentary seal fisheries in that part of the Labrador coast.

#### ONTARIO.

The yield of the fisheries in this province exceeds the good catch of 1890, and shows a surplus value over 1891 of \$235,800. This increase is noticed in almost every kind of fish, but specially in the staple fish of the great lakes, namely, whitefish, salmon, trout and herring.

In Lake Superior fishing was not prosecuted as extensively as usual, only forty-eight pound-nets being licensed, compared with seventy-four during the previous year. The contrary may be said of the North Channel, or Manitoulin Island division, where more tugs, more pound-nets and other fishing plant than usual were engaged in this valuable industry, producing a surplus value of nearly \$100,000 over last year's yield.

In Georgian Bay, owing to the change of fishery officers during the fishing season, the returns are not as complete as usual, but are sufficient to show that the general result is about the same as in 1891.

In Lake Huron proper, notwithstanding the heavy gales experienced at the end of October, destroying many nets, etc., the yield is more than double that of the preceding season, salmon-trout especially showing an increase of nearly 300 per cent over 1891.

In Lake Erie the season's fishing operations are more satisfactory than last year. The catch of herring and pickerel was very large.

In Lake Ontario the figures show an aggregate of nearly twice the value of 1891, which is explained by the proper classification of Prince Edward county and other districts which were formerly returned separately.

#### MANITOBA.

The slight increase noticeable in Manitoba, about \$50,000, is ascribed mainly to the large catch of whitefish, amounting to nearly 800,000 lbs. As the close season for this fish was extended to 15th December, instead of the 1st, the winter catch was not quite up to the average.

The privilege of catching pickerel, pike, etc., during the close-season for whitefish, was well received by the settlers. Several nets were seized and destroyed, and guilty parties fined for fishing whitefish during close season.

Sturgeon also show a large increase over last year. Pickerel and pike were as plentiful as ever, but as the demand for them regulated the catch it was not large.

## NORTH-WEST TERRITORIES.

Although the returns from these vast Territories are still very incomplete, it is quite evident that the fishery protection service is being better organized. The extraordinary increase in the catch of fish must be more attributable to better supervision and more correct observations than to the abundance of fish.

Last year the total catch was under 2,000,000 lbs. of fish, valued at \$86,785, while this year it is estimated at 19,836,800 lbs., valued at \$793,549. Whitefish is the staple fish, of which the enormous and almost incredible catch of 11,435,000 lbs. is returned. In some localities, especially in the North Saskatchewan district, the Indian population live almost exclusively on these delicious fish, which Providence has placed at their disposal in the numerous lakes scattered in this vast territory. The daily ration to these Indian families is four fish to each man, two to each woman, one to each child and two to each dog.

The catch of pike is also enormous, exceeding 8,000,000 lbs. However large these estimates may appear, the inspector in charge states that care has been taken not to exceed the actual yield.

After the 15th December numerous samples of whitefish were examined and found not through spawning, proving that the extension of close seasons was a judicious step.

## BRITISH COLUMBIA.

The value of the fisheries of this province falls short of that of the preceding year by \$159,271. As anticipated in the preliminary report, the quantity of salmon disposed of in a fresh state exceeded that of 1891 by 800,000 lbs., while the pack of the canners fell short by over 3,600,000 cans. This limited output is said to have been due more to a desire to regulate the supply than on account of any scarcity of fish. The season of 1892 was considered satisfactory for what is there termed an "off year," having turned out much better than the preceding periodical "off year" (1888).

As was to be expected in view of the Behring Sea *modus vivendi*, a decline in the number of fur-seals taken has occurred, due entirely to the prohibition of sealing in Behring Sea, and not to any diminution in the numbers of those valuable animals.

The other fisheries of British Columbia have yielded fairly well for the attention paid to them. Halibut especially shows an increase of over 200,000 lbs.

An incident worthy of note was the capture of several shad at River's Inlet and on the North Arm of the Fraser River. The inspector states that all the shad on the Pacific coast originated from the fry planted in Sacramento River, and he alludes to the incident to show a northward migration by these fish of over 1,000 miles.

## GENERAL RECAPITULATION

OF the Yield and Value of the Fisheries in the Dominion of Canada, for the Years  
1891 and 1892.

Kinds of Fish.		1891.		1892.	
		Quantity.	Value.	Quantity.	Value.
			\$ cts.		\$ cts.
Cod	Cwt.	849,838	3,827,708 00	880,184	4,050,468 00
Herring, pickled	Brls.	298,598	1,343,693 00	300,223	1,351,005 00
do smoked	Lbs.	23,869,200	596,732 25	14,975,675	301,595 75
do frozen, fresh	"	9,108,650	354,489 00	9,748,240	383,029 60
Lobsters, preserved, in cans	"	14,285,157	1,999,921 04	12,524,498	1,753,429 30
do in shell, alive, &c.	Tons.	6,312 <sup>3</sup> / <sub>5</sub>	252,500 00	6,012 <sup>1</sup> / <sub>2</sub>	238,400 00
Salmon, pickled	Brls.	2,557	35,500 00	3,132	40,660 00
do fresh	Lbs.	4,404,311	671,746 10	5,430,749	791,600 70
do preserved, in cans	"	15,206,328	1,522,508 80	11,514,622	1,382,535 04
do smoked	"	132,472	26,494 40	140,258	28,051 60
Mackerel, preserved, in cans	"	165,981	19,917 76	136,330	16,359 60
do pickled	Brls.	139,261	1,949,654 00	95,044	1,330,618 00
Haddock	Cwt.	150,170	525,595 00	167,578	586,524 60
Hake	"	124,385	315,555 00	116,711	350,133 00
Pollack	"	81,248	243,744 00	74,294	222,882 00
Trout	Lbs.	6,287,643	628,763 80	6,933,819	692,042 40
do pickled	Brls.	3,258	32,580 00	1,907	19,070 00
Whitefish	Lbs.	11,763 841	791,185 40	23,776,763	1,498,523 42
Smelts	"	3,552,101	277,035 75	4,719,193	235,958 75
Sardines	Hogsheads		192,936 50		118,213 50
Oysters	Brls.	61,032	183,846 00	55,953	167,659 00
Hake sounds	Lbs.	86,075	64,554 75	84,117	42,058 50
Cod tongues and sounds	Brls.	1,278	11,443 00	1,299	12,990 00
Alewives	"	43,117	194,029 50	37,684	168,179 50
Shad, pickled	Brls.	8,428	84,286 46	9,989	99,892 44
Eels, pickled	"	4,284	42,840 00	4,891	48,910 00
do fresh	Lbs.	842,696	50,561 76	906,755	54,251 30
Halibut	"	2,719,697	215,469 00	3,430,809	275,207 50
Sturgeon	"	1,525,246	87,789 56	1,628,435	90,540 60
Maskinonge	"	743,030	44,581 80	541,250	32,475 00
Bass	"	799,324	47,959 44	805,560	48,333 40
Pickrel	"	2,990,679	134,130 07	3,893,190	188,573 57
Pike	"	1,811,357	62,831 98	9,682,570	224,253 83
Winnimish	"	100,000	6,000 00	100,000	6,000 00
Tom cod or frost fish	"		21,767 50	857,000	24,100 00
Flounders	"	126,575	6,328 75	200,000	10,010 00
Squid	Brls.	8,348	33,392 00	9,794	39,176 00
Oulachons	Lbs.	281,700	12,505 00	372,300	19,045 00
Clams	"		16,024 20		18,634 00
Fur-seal skins in British Columbia	No.	52,995	794,925 00	46,362	602,706 00
Hair do	"	25,962	31,158 75	25,671	30,413 75
Sea-otter skins	"			14	2,100 00
Porpoise skins	"	301	1,204 00	316	1,318 00
Fish oils	Galls.	834,347	358,668 20	836,699	359,904 20
Coarse and mixed fish	Brls.	39,113	171,076 03		185,884 95
Mixed fish, British Columbia	"		46,419 00		50,046 00
Fish used as bait	Brls.	178,731	212,735 50	243,744	313,125 50
do manure	"	198,386	99,194 00	138,324	69,164 00
Guanos	Tons.	770	19,250 00	2,774	37,475 00
Crabs	No.		30,200 00		30,000 00
Home consumption not included in return	"		284,647 00		296,644 00
Total			18,977,878 05		18,941,171 30



## RECAPITULATION.

Provinces.	Value.		Decrease.	Increase.
	1891.	1892.		
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Nova Scotia.....	7,011,300 53	6,340,724 01	670,576 52	.....
New Brunswick .....	3,571,050 70	3,203,922 00	367,128 70	.....
British Columbia.....	3,008,755 30	2,849,483 64	159,271 66	.....
Quebec.....	2,008,678 74	2,236,732 06	.....	228,053 32
Ontario.....	1,806,389 68	2,042,198 53	.....	235,808 85
Prince Edward Island .....	1,238,733 81	1,179,856 68	58,877 13	.....
Manitoba and North-west Territories.....	332,969 29	1,088,254 38	.....	755,285 09
Totals.....	18,977,878 05	18,941,171 30	1,255,854 01	1,219,147 26
Decrease ..	.....	.....	36,706 75	.....

## COMPARATIVE STATEMENT

OF Production in each Branch of the Fisheries in the respective Provinces of the Dominion of Canada, 1891 and 1892.

## PROVINCE OF NOVA SCOTIA.

Kinds of Fish.		1891.		1892.	
		Quantity.	Value.	Quantity.	Value.
			\$ cts.		\$ cts.
Salmon.....	Brls.	716	11,456 00	320	5,120 00
do fresh.....	Lbs.	358,697	71,739 80	400,996	80,199 00
do smoked.....	"	9,142	1,828 40	3,308	661 60
do preserved.....	Cans.	10,600	1,590 00	2,590	388 00
Mackerel.....	Brls.	99,877	1,398,278 00	49,601	694,416 00
do preserved.....	Cans.	11,800	1,416 00		
Herring.....	Brls.	131,335	591,009 50	155,529	699,882 00
do.....	Boxes.	122,850	30,712 50	Lbs. 278,300	5,902 00
Alewives.....	Brls.	19,770	80,966 50	15,592	70,165 50
do smoked.....	No.	120,100	960 00	50,000	400 00
Cod, dried.....	Cwt.	545,977	2,456,899 00	559,054	2,515,746 00
Cod tongues and sounds.....	Brls.	942	8,083 00	1,066	10,660 00
Haddock.....	Cwt.	121,721	426,023 50	126,296	442,036 00
do fresh.....	Lbs.	740,000	14,800 00	40,000	8,000 00
do smoked.....	Cases.	10,030	26,472 00	16,084	38,601 60
do preserved.....	"			1,264	6,320 00
Pollack.....	Cwt.	56,866	170,598 00	58,015	174,045 00
Hake.....	"	55,487	166,461 00	55,550	166,650 00
do sounds.....	Lbs.	28,700	21,523 50	35,846	17,923 00
Halibut.....	"	1,120,641	112,063 40	1,560,534	156,055 01
Shad.....	Brls.	2,130	21,300 00	2,755	27,550 00
Bass.....	Lbs.	7,600	456 00	16,370	982 00
Trout.....	"	198,180	19,817 50	152,450	15,245 50
Squid.....	Brls.	8,286	33,144 00	9,503	38,012 00
Smelts.....	Lbs.	432,341	21,616 75	338,225	16,910 35
Eels.....	Brls.	2,335	23,350 00	2,627	26,270 00
Frost fish.....	"	150	1,500 00	200	2,000 00
Scallops.....	Doz.	400	200 00	350	175 00
Oysters.....	Brls.	4,318	12,954 00	3,776	11,328 00
Whitefish.....	Lbs.			1,000	100 00
Clams.....			980 00		309 00
Lobsters, preserved.....	Cans.	6,323,628	885,306 98	5,372,672	752,173 66
do shipped fresh, alive, &c.....	Tons.	5,390½	215,620 00	4,880	193,100 00
Fish oils.....	Galls.	253,182	101,272 20	225,197	90,078 80
Guano.....	Tons.	383	9,575 00	283	7,075 00
Fish used as bait.....	Brls.	61,969	49,352 50	64,629	55,803 00
do manure.....	"	27,949	13,975 50	20,880	10,441 00
Total.....			7,011,300 53		6,340,724 01
Decrease in 1892.....					670,576 52



COMPARATIVE STATEMENT of Production in each Branch of Fisheries, &c.—*Continued.*

## PROVINCE OF NEW BRUNSWICK.

Kinds of Fish.		1891.		1892.	
		Quantity.	Value.	Quantity.	Value.
			\$ cts.		\$ cts.
Cod	Cwt.	86,850	390,825 00	74,547	335,461 50
Herring	Brls.	90,933	409,198 50	95,040	427,680 00
do smoked	Lbs.	22,477,350	561,933 75	14,641,000	292,820 00
do frozen	No.	1,000,000	7,500 00	440,000	3,300 00
Mackerel	Brls.	17,379	243,306 00	18,725	262,150 00
do preserved, in cans	Lbs.	91,808	11,016 96	128,810	15,457 20
do fresh	Hogsheads.	242	1,936 00		
Haddock	Cwt.	13,892	48,622 00	16,433	57,515 50
Pollack	"	24,382	73,146 00	16,279	48,837 00
Hake	"	40,383	121,149 00	37,615	112,845 00
Finnan haddies, in cans	Lbs.	20,000	2,400 00		
Halibut	"	382,275	38,227 50	385,530	38,553 00
Salmon, pickled	Brls.			58	928 00
do fresh, in ice	Lbs.	1,317,420	263,484 00	1,405,170	281,034 00
do preserved, in cans	"	25,720	3,858 00	23,440	3,516 00
do smoked	"	2,030	406 00	1,450	290 00
Alewives	Brls.	22,404	100,818 00	21,155	95,197 50
Trout	Lbs.	109,928	10,992 80	109,760	10,976 00
Smelts	"	4,674,532	233,726 60	3,914,860	195,743 00
Shad	Brls.	5,957	59,570 00	6,518	65,180 00
Eels	"	1,070	10,700 00	1,370	13,700 00
Sardines	Hogsheads.	33,615	151,267 50	22,055	99,247 50
do in cans	Cases.	8,333	20,000 00	cans 150,000	6,000 00
Bass	Lbs.	26,009	1,560 54	55,870	3,352 20
Pickarel	"	125,000	6,250 00	118,000	5,900 00
Perch	"	15,020	450 60	16,300	489 00
Sturgeon	"	250	25 00		
Oysters	Brls.	14,934	44,802 00	17,840	53,520 00
Lobsters, preserved	Cans.	3,330,120	466,216 80	3,204,320	448,604 80
do	Tons.	922	36,880 00	1,132½	45,300 00
Cod tongues and sounds	Brls.	106	1,060 00	109	1,090 00
Hake sounds	Lbs.	42,300	31,725 00	41,615	20,807 50
Fish oils	Galls.	64,471	25,788 40	80,897	32,358 80
Fish guano	Tons.	387	9,675 00	351	8,775 00
Fish used as manure	Brls.	36,307	18,153 50	44,247	22,123 50
do bait	"	60,664	79,236 00	58,540	77,760 00
Squid	"	62	248 00	291	1,164 00
Frost fish	Lbs.	255,350	12,767 50	292,000	14,600 00
Flounders	"	126,575	6,328 75	200,000	10,010 00
Clams	Brls.	300	1,800 00		8,700 00
Fish used in district No. 1, not included above			64,000 00		82,936 00
Total			3,571,050 70		3,203,922 00
Decrease in 1892					367,128 70

COMPARATIVE STATEMENT of Production in each Branch of Fisheries, &c.—*Continued.*  
PROVINCE OF PRINCE EDWARD ISLAND.

Kinds of Fish.		1891.		1892.	
		Quantity.	Value.	Quantity.	Value.
			\$ cts.		\$ cts.
Cod .....	Cwt.	14,520	65,340 00	19,402	87,309 00
Herring .....	Brls.	40,468	182,106 00	20,902	94,059 00
Mackerel .....	"	17,487	244,818 00	21,901	306,614 00
do preserved .....	Cans.	46,240	5,548 80	7,521	902 40
Haddock .....	Cwt.	842	2,947 00	8,621	30,173 50
Hake .....	"	8,515	25,545 00	23,546	70,638 00
Salmon .....	Lbs.	3,624	693 60	11,980	1,098 00
Alewives .....	Brls.	730	3,285 00	537	2,416 50
Halibut .....	Lbs.	6,000	600 00	2,300	230 00
Trout .....	"	39,200	3,920 00	34,450	3,445 00
Smelts .....	"	285,200	13,691 00	196,900	9,845 00
Eels .....	Brls.	830	8,300 00	894	8,940 00
Oysters .....	"	41,030	123,090 00	32,937	98,811 00
Lobsters, preserved, in cans .....	Lbs.	3,670,414	513,857 96	2,819,572	394,740 08
Cod sounds .....	Brls.		110 00		
Fish oils .....	Galls.	13,388	5,335 20	11,403	4,561 20
Manure .....	Brls.	22,010	11,005 00	21,250	21,250 00
Bait .....	"	11,470	17,205 00	27,664	41,496 00
Shad .....	"	3	30 00		
Hake sounds .....	Lbs.	15,075	11,306 25	6,656	3,328 00
Total .....			1,238,733 81		1,179,856 68
Decrease in 1892 .....					58,877 13



COMPARATIVE STATEMENT of Production in each Branch of Fisheries, &c.—*Continued.*

## PROVINCE OF QUEBEC.

Kinds of Fish.		1891.		1892.	
		Quantity.	Value.	Quantity.	Value.
			\$ cts.		\$ cts.
Cod.....	Cwt.	201,622	907,299 00	245,209	1,103,276 50
Herring, pickled.....	Brls.	31,637	142,366 50	25,061	112,774 50
do smoked.....	Lbs.	33,000	330 00	35,375	353 75
Mackerel.....	Brls.	4,518	63,252 00	4,817	67,438 00
Haddock.....	Cwt.	1,923	6,730 50	1,108	3,878 00
Halibut.....	Lbs.	80,781	8,078 10	124,945	12,494 50
Salmon, pickled.....	Brls.	488	7,808 00	396	6,336 00
do fresh.....	Lbs.	633,717	126,743 40	679,094	135,818 80
Shad.....	"	56,441	3,386 46	119,374	7,162 44
Eels.....	"	789,701	47,382 06	830,705	49,688 30
do pickled.....	Brls.	49	490 00		
Sardines.....	"	7,223	21,669 00	4,322	12,966 00
Sturgeon.....	Lbs.	269,001	16,140 06	213,342	12,800 40
Trout.....	"	427,350	42,735 00	422,250	40,885 00
do.....	Brls.	85	850 00		
Winninish.....	Lbs.	100,000	6,000 00	100,000	6,000 00
Whitefish.....	"	115,562	9,244 96	143,262	11,460 96
Maskinongé.....	"	87,535	5,252 10	52,450	3,147 00
Bass.....	"	114,370	6,862 20	97,130	5,827 80
Pickarel.....	"	251,601	12,580 05	201,175	10,058 75
Pike.....	"	284,710	14,235 50	213,645	10,682 25
Tom cod.....	Bush.	15,000	7,500 00	15,000	7,500 00
Cod tongues and sounds.....	Brls.	219	2,190 00	124	1,240 00
Lobsters, canned.....	Lbs.	960,995	134,539 30	1,127,934	157,910 76
Small and mixed fish.....	Brls.	16,597	68,799 00	14,286	58,137 00
Seal skins.....	No.	20,787	25,983 75	18,971	23,713 75
Porpoise skins.....	"	301	1,204 00	316	1,318 00
Fish oils.....	Galls.	253,806	101,522 40	259,648	103,859 20
Fish used as bait.....	Brls.	44,628	66,942 00	92,711	139,066 50
do manure.....	"	112,120	56,060 00	73,197	36,599 50
Smelts.....	Lbs.	79,028	3,951 40	112,608	5,630 40
Fish used as local consumption.....	Brls.	22,688	90,752 00	22,176	88,708 00
Total.....			2,008,678 74		2,236,732 06
Increase in 1892.....					228,053 32

COMPARATIVE STATEMENT of Production in each branch of Fisheries, &c.—*Continued.*  
 PROVINCE OF ONTARIO.

Kinds of Fish.		1891.		1892.	
		Quantity.	Value.	Quantity.	Value.
			\$ cts.		\$ cts.
Whitefish.....	Brls.	2,061	20,610 00	1,030	10,300 00
do .....	Lbs.	6,073,844	485,907 52	7,637,396	610,991 68
Salmon-trout.....	Brls.	3,173	31,730 00	1,907	19,070 00
do .....	Lbs.	5,449,385	544,938 50	6,146,859	614,685 90
Herring.....	Brls.	4,225	19,012 50	3,546	15,957 00
do .....	Lbs.	8,233,250	329,330 00	8,918,240	356,729 60
Maskinongé.....	"	655,495	39,329 70	488,800	29,328 00
Bass.....	"	651,345	39,080 70	636,190	38,171 40
Pickereel.....	"	1,993,323	99,666 15	2,973,422	148,671 10
Pike.....	"	602,118	30,105 90	806,436	40,321 80
Sturgeon.....	"	882,475	52,948 50	767,187	46,031 10
Eels.....	"	52,995	3,179 70	76,050	4,563 00
Coarse fish.....	"	2,688,517	80,655 51	3,579,265	107,377 95
Fish for home consumption.....	"	996,500	29,895 00		
Total.....			1,806,389 68		2,042,198 53
Increase in 1892.....					235,808 85

MANITOBA AND NORTH-WEST TERRITORIES.

Whitefish.....	Lbs.	5,162,235	275,422 92	15,789,105	865,670 78
Pickereel (doré).....	"	620,755	15,633 87	600,593	23,943 72
Pike (jackfish).....	"	924,529	18,490 58	8,662,489	173,249 78
Sturgeon.....	"	49,020	2,451 00	127,410	5,684 10
Tullibee.....	"	246,240	5,574 80	171,800	3,536 00
Mixed fish.....	"	1,539,612	15,396 12	1,617,000	16,170 00
Total.....			332,969 29		1,088,254 38
Increase in 1892.....					755,285 09

COMPARATIVE STATEMENT of Production in each Branch of Fisheries, &c.—*Concluded.*

## PROVINCE OF BRITISH COLUMBIA.

Kinds of Fish.		1891.		1892.	
		Quantity.	Value.	Quantity.	Value.
			\$ cts.		\$ cts.
Salmon.....	Brls.	1,353	16,236 00	2,348	28,176 00
do fresh.....	Lbs.	2,090,853	209,085 30	2,935,509	293,550 90
do preserved, in cans.....	"	15,170,608	1,517,060 80	11,488,592	1,378,631 04
do smoked.....	"	121,300	24,260 00	135,500	27,100 00
Herring, fresh and salted.....	"	375,400	17,659 00	489,000	23,652 50
do smoked.....	"	31,300	3,756 00	21,000	2,520 00
Trout, fresh.....	"	63,600	6,360 00	68,050	6,805 00
Sturgeon.....	"	324,500	16,225 00	520,500	26,025 00
Halibut, fresh.....	"	1,130,000	56,500 00	1,357,500	67,875 00
Skull, salted.....	Brls.	137	1,644 00	95	1,140 00
Clams.....	Sacks.	5,500	9,625 00	5,500	9,625 00
do canned.....	Lbs.	30,160	3,619 20		
Mussels.....	Sacks.	300	525 00	300	525 00
Oysters.....	"	1,500	3,000 00	2,000	4,000 00
Oulachons, pickled.....	Brls.	1,025	8,200 00	875	7,000 00
do smoked.....	Lbs.	4,700	705 00	21,800	3,270 00
do fresh.....	"	72,000	3,600 00	175,500	8,770 00
Fur-seal skins.....	No.	52,995	794,925 00	46,362	602,706 00
Hair do.....	"	5,175	5,175 00	6,700	6,700 00
Sea-otter skins.....	"			14	2,100 00
Fish oils.....	Galls.	249,500	124,750 00	259,554	129,046 20
Crabs.....	No.		30,200 00	600,000	30,000 00
Smelts, fresh.....	Lbs.	81,000	4,050 00	156,600	7,830 00
Assorted or mixed fish.....	"	411,500	20,575 00	430,320	21,516 00
Rock cod.....	"	146,900	7,345 00	173,500	8,675 00
Tooshqua, fresh.....	"	449,500	22,475 00	416,300	20,815 00
Fish products.....			1,200 00		6,425 00
Fish for home consumption, Chinese labourers not included above.....	Lbs.		100,000 00		125,000 00
Total.....			3,008,755 30		2,849,483 64
Decrease in 1892.....					159,271 66



# RECAPITULATION Showing the Number, Tonnage and Value of all Fishing Material, &c., and Number of Fishermen in the Dominion of Canada, 1892.

PROVINCES.	FISHERMEN.		VESSELS.		BOATS.		GILL-NETS AND SEINES.		Value of Pound Nets, Trap Nets, Weirs, &c.	Value of Lobster Plant.	Approximate Value of Freezers, houses and other Fixtures not itemized.	Total Value.
	Vessels.	Boats.	Number.	Tonnage.	Value.	Number.	Value.	Fathoms.				
Nova Scotia.....	5,421	18,649	547	25,121	1,100,626	13,518	315,428	2,152,908	104,630	455,949	154,740	2,535,908
New Brunswick.....	579	11,686	142	2,355	77,510	5,937	254,379	455,783	178,493	336,742	267,395	1,403,650
Prince Edward Island..	257	4,763	40	1,329	26,790	1,859	63,406	96,012	750	408,130	.....	540,726
Quebec.....	205	10,489	32	1,027	27,595	6,003	181,157	241,954	74,825	84,000	.....	528,615
Ontario.....	361	2,348	*77	1,926	188,210	1,032	125,553	1,238,907	118,416	.....	.....	712,804
British Columbia. ....	†1,472	6,608	143	5,254	656,150	1,766	91,365	293,763	13,875	.....	819,000	1,806,352
Manitoba.....	35	715	*7	193	36,000	398	10,684	96,644	1,000	.....	.....	59,780
Totals.....	8,330	55,348	988	37,205	2,112,875	30,513	1,041,972	4,576,066	491,989	1,284,821	1,241,135	7,647,835
		63,678										

\* Tug.

† Including seal hunters.

NOTE.—For further details see pages 57, 89, 98, 139, 163, 188.

## RECAPITULATION.

TABLE showing the Total Value of the Fisheries in the respective Provinces of Canada, from 1870 to 1892, inclusive, as compiled from the Annual Reports of the Department of Fisheries.

Years.	Nova Scotia.	New Brunswick.	Prince Edward Island.	Quebec.	Ontario.	British Columbia.	Manitoba and North-west Territories.	Total for Canada.
1870.....	\$ 4,019,425	\$ 1,131,433	No data	\$ 1,161,551	\$ 264,982	No data	No data	\$ 6,577,391
1871.....	5,101,030	1,185,033	do	1,093,612	193,524	do	do	7,573,199
1872.....	6,016,835	1,965,459	do	1,320,189	267,633	do	do	9,570,116
1873.....	6,577,087	2,285,662	207,535	1,391,564	293,091	do	do	10,754,397
1874.....	6,652,302	2,685,794	288,863	1,608,660	446,267	do	do	11,681,886
1875.....	5,573,851	2,427,654	298,927	1,596,759	453,194	do	do	10,350,385
1876.....	6,029,050	1,953,380	493,967	2,097,668	437,229	do	do	11,117,000
1877.....	5,527,858	2,133,237	763,036	2,560,147	438,223	do	do	12,003,934
1878.....	6,131,670	2,305,790	840,344	2,664,055	348,122	do	do	13,293,678
1879.....	5,752,937	2,554,722	1,402,301	2,820,395	367,133	do	do	13,523,254
1880.....	6,291,061	2,744,447	1,675,089	2,631,556	444,491	do	do	14,499,979
1881.....	6,214,782	2,930,904	1,955,290	2,751,962	509,903	do	do	15,817,162
1882.....	7,131,418	3,192,339	1,855,687	1,976,516	825,457	do	do	16,824,092
1883.....	7,089,374	3,185,674	1,272,468	2,138,997	1,027,033	do	do	16,958,192
1884.....	8,763,779	3,730,454	1,085,619	1,694,561	1,133,724	do	do	17,766,404
1885.....	8,283,922	4,005,431	1,293,430	1,719,460	1,342,692	do	do	17,722,973
1886.....	8,415,362	4,180,227	1,141,991	1,741,382	1,435,998	do	do	18,679,288
1887.....	8,379,782	3,559,507	1,037,426	1,773,567	1,531,850	do	do	18,386,100
1888.....	7,817,030	2,941,863	876,862	1,860,012	1,339,869	do	do	17,418,510
1889.....	6,346,722	3,067,039	886,430	1,876,194	1,363,123	do	do	17,653,256
1890.....	6,636,444	2,699,055	1,041,109	1,615,119	2,009,037	do	do	17,714,302
1891.....	7,011,300	3,571,050	1,238,733	2,008,678	1,806,389	do	do	18,977,878
1892.....	6,340,724	3,203,922	1,179,856	2,236,732	2,042,198	do	do	18,941,171
Totals.....	152,703,675	63,640,085	20,836,623	44,239,336	21,421,752	28,479,112	2,317,747	333,733,658

COMPARATIVE TABLE, showing Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries of Canada, together with the Value of Fishing Materials employed, from 1879 to 1892.

Years.	Vessels.			Boats.		Value of Nets and Seines.	Value of other Fishing Material.	Total of Capital Invested.
	No.	Tonnage.	Value.	No.	Value.			
			\$		\$	\$	\$	\$
1879 .....	1,183	43,873	1,714,917	25,616	854,289	988,698	456,617	4,014,521
1880 ....	1,181	45,323	1,814,688	25,266	716,352	985,978	419,564	3,936,582
1881 . . . .	1,120	48,389	1,765,870	26,108	696,710	970,617	679,852	4,113,049
1882 .....	1,140	42,845	1,749,717	26,477	833,137	1,351,193	823,938	4,757,985
1883 .....	1,198	48,106	2,023,045	25,825	783,186	1,243,366	1,070,930	5,120,527
1884 .....	1,182	42,747	1,866,711	24,287	741,727	1,191,579	1,224,646	5,014,663
1885 .....	1,177	48,728	2,021,633	28,472	852,257	1,219,284	2,604,285	6,697,459
1886 .....	1,113	44,605	1,980,411	28,187	850,545	1,263,152	2,720,187	6,814,295
1887 .....	1,168	44,485	1,989,840	28,092	875,316	1,499,328	2,384,356	6,748,840
1888 .....	1,137	43,247	2,017,558	27,384	859,953	1,594,902	2,390,502	6,863,005
1889 .....	1,100	44,936	2,064,918	29,555	965,010	1,591,085	2,149,138	6,770,151
1890 ....	1,069	43,084	2,152,790	29,803	924,346	1,695,358	2,600,147	7,372,641
1891 .....	1,027	39,377	2,125,355	30,438	1,007,815	1,644,892	2,598,124	7,376,186
1892 .....	988	37,205	2,112,875	30,513	1,041,972	1,475,043	3,017,945	7,647,835



COMPARATIVE TABLE showing the Number of Men employed in the Fishing Industry in Vessels and Boats since the Year 1879 to 1892.

Years.	Number of Men in Vessels.	Number of Men in Boats.	Total Number of Fishermen.
1879.....	8,818	52,577	61,395
1880.....	8,757	51,900	60,657
1881.....	8,359	50,679	59,056
1882.....	8,498	52,785	61,283
1883.....	9,966	52,259	62,225
1884.....	9,968	51,854	61,822
1885.....	9,589	53,282	62,821
1886.....	8,927	53,073	62,000
1887.....	8,911	55,247	64,158
1888.....	9,574	53,109	62,683
1889.....	9,621	55,382	65,003
1890.....	8,726	55,000	63,726
1891.....	8,666	56,909	65,575
1892.....	8,330	55,348	63,678

## SAWDUST AND THE POLLUTION OF STREAMS.

The subject of dealing with sawdust, allowed by mill-owners to pass into streams, has been dealt with very fully in previous reports issued by this department. The introductory part of the annual report of the Department of Fisheries for 1889 contains a summary of the action taken by the department previous to the date of its publication. Reference is also made to the recommendations of the Select Committee, appointed by order of the Senate, "to inquire and report upon the extent and effect on the Ottawa River of the deposit therein of sawdust and other refuse." The rivers in Canada exempted from the enforcement of the law under the provisions of Chapter 91, Revised Statutes of Canada, intituled: "An Act respecting the protection of navigable rivers," are there mentioned. A special report by Mr. Samuel Wilmot, Superintendent of Fish Culture, on the effect of sawdust in the Otonabee River, and the action of mill-owners, is also published in the annual report of 1889.

The annual report of 1890 contains a memorandum on pollution of streams and diagrams of contrivances adopted for the disposal of sawdust and mill refuse. It is not deemed necessary at present to reproduce the articles and reports above alluded to, but merely to call attention to the fact that they give valuable information as to the effect of sawdust deposits in navigable and other streams.

It is no longer an open question as to the baneful effects of sawdust upon the fisheries of Canada, both in inland streams and rivers which empty into the sea. It has also been stated and supported by considerable evidence that the coastal fisheries are more or less affected by the depletion of the streams which flow into the salt water. Alewives, salmon and trout which visit fresh water streams to spawn, instinctively turn aside and pass the streams which have been made foul by sawdust deposits that have become partly decomposed. It may be considered somewhat trite to say that fish need clean beds of sand and gravel for spawning, but from the frequent repetition of statements made by mill-owners, to the effect that sawdust is not injurious, it seems necessary to assert again and again, that salmon, trout and other fish which enter fresh water streams require a clean bottom. When these fish do not find the streams in such a condition as their natural instinct requires, they refuse to enter the polluted waters, and seek other places for the deposit of their spawn. The effect of this is to drive the fish away from fishing grounds which have been fruitful in their returns to fishermen. It also operates, particularly in the case of alewives, which form a large part of the food of the cod family, halibut and other fish, in the direction of driving these fish from grounds well known as good fishing localities, to seek their food elsewhere. In consequence of this, fishermen who have prepared outfits and who have proceeded to the fishing grounds formerly resorted to by them are disappointed, and in many cases have to prosecute their calling at a greater distance from home, and consequently at greater expense.

It may be said that the fisheries fluctuate from year to year, and that shoals of herring and great numbers of codfish may be found at times on parts of the coast that have not been visited by these fish for a number of years previously. While this may be true, yet it is a well known fact that the salmon family and alewives return to the streams in which they were spawned. In thus following their habit they attract the larger fishes to the coastal waters. But if the streams visited by anadromous fish become polluted and as a consequence these fish abandon their old spawning grounds, it follows that the sea-fish will pursue them to other coasts where the streams emptying into the sea, afford good spawning beds.

Enough has been stated in previous reports to show the effects of sawdust and other pollutions upon the coastal fishing of the Dominion. It is a self-evident fact that the natural condition of the spawning beds for anadromous fish should be maintained as far as possible by preventing the throwing of offensive matter in the water and by allowing the fish free access, where dams are constructed, by fish-ways, or, if possible, by their natural course.

#### THE EFFECT OF SAWDUST.

Sawdust affects streams visited by migratory fish by causing the spawning beds to become offensive by the slimy nature of the water-soaked sawdust which prevents the ova from being deposited in secure places. Gas is generated in deep deposits of sawdust and mill refuse, which frequently causes explosions and upheavals as is the case, for instance, in the Ottawa River, where immense quantities of sawdust have been allowed to fall into the river in the past. It has also been observed from time to time, that vegetation which induces insect life and upon which the young fish feed, is destroyed by deposits of sawdust in localities where reeds and weeds have been known in former years to make rank growth. In addition to this, salmon ova have been found diseased with particles of sawdust adhering to them. In many places trout and salmon have

been found dead with sawdust in their gills, plainly indicating that this foreign matter which is of a harsh and irritating nature has been breathed in, thereby causing death.

The decaying matter in navigable streams where sawdust has been allowed to accumulate in large quantities, is frequently stirred up by passing tugs and steamers. This, of course, makes the water turbid and offensive to fish-life and thereby has the effect of causing fish seeking spawning grounds, to turn back from the polluted waters.

The main cause of the pollution of the streams of Canada is contamination with the sawdust and refuse of lumber mills. In this article it is intended to point mainly to the necessity for some action in the direction of stopping the present practice followed by many mill-owners of discharging sawdust into the rivers, but the effect of the pollution of streams whether from sawdust or any other deleterious substances is the same. In Great Britain where the question has for centuries occupied the attention of the authorities, the injurious results of poisoning the streams has been very marked.

"The state of the Thames River within the boundaries of London has since the beginning of the present century excluded salmonoids entirely from the river, but every season salmon and grilse are taken in or near the Thames estuary and there is no doubt that if the water could again be rendered moderately clear and if fish-ways were provided at the impassable weirs, the upper waters of the Thames would again be frequented by salmon and trout."

The following extract from the report of Dr. James A. Henshall, read at the annual meeting of the American Fishery Society bears, upon this point:—

"If a stream that is known to have failed in its fish supply is polluted by the refuse of mills and factories on its banks, it is useless to attempt to restore its fish-life by the introduction of a fresh supply so long as the poisonous emanations continue. Even if the water is not poisoned to such an extent as to cause the death of the fishes, it is fatal to nearly all ordinary fish food, which amounts to the same thing.

"This is a matter that is not often thought of, but it is a very vital one, nevertheless, and one that lies at the very root of the cause of the decline of fishes in our inland streams. To destroy the food of fishes is to destroy the fishes themselves, or compel them to evacuate streams thus depleted of food for more favourable locations if possible.

"The refuse from manufactories of all kinds, as saw-mills, distilleries, paper-mills, pulp-mills, starch factories, oil refineries, etc., usually found on the banks of streams, should be required by law to be run into pits and converted into fertilizers or other products, or burned, or otherwise disposed of. In most cases such a law would be a blessing in disguise to the manufacturer, for the refuse or offal could be made a source of profit, as is now being proved in several instances in various parts of the country."

"The penalties for violating these laws should be so severe as to cause a due respect for the same; but above and beyond everything else the pollution of the streams should be prevented."

#### LAWS IN CANADA AND UNITED STATES TO PREVENT THE POLLUTION OF STREAMS.

Chapter 91, "An Act respecting the protection of navigable waters," section 7:—

"No owner or tenant of any saw-mill or any workman therein or other person shall throw or cause to be thrown or suffer or permit to be thrown, any sawdust, edgings, slabs, bark or rubbish of any description whatsoever, into any river, stream or other water, any part of which is navigable or which flows into any navigable water; and every person who violates the provisions of this section shall, on summary conviction, be liable, for a first offence, to a penalty of not less than twenty dollars, and for each subsequent offence, to a penalty of not less than fifty dollars.



"The several fishery officers shall, from time to time, examine and report on the condition of such rivers, streams and waters, and prosecute all persons violating the provisions of this section ; and for enforcing the said provisions, such officers shall have and exercise all the powers conferred upon them for like purposes by the Fisheries Act.

"The Governor in Council, when it is shown to his satisfaction that the public interest would not be injuriously affected thereby may, from time to time, by proclamation published in the *Canada Gazette*, declare any such river, stream or water, or part or parts thereof, exempted from the operations of this section in whole or in part, and may, from time to time, revoke such proclamation."

In the United States, nearly all the New England States have laws prohibiting the pollution of streams by sawdust, mill refuse, etc. In Maine and New Hampshire, the laws on this matter are regulated and enforced by the health officers. The game laws and health laws of Massachusetts and Connecticut, provide penalties for throwing refuse and sawdust into the rivers and streams. New York and South Carolina also, have laws prohibiting the contamination of streams by sawdust. But the most stringent enactments against the pollution of streams are to be found in some of the Western States, namely, Washington, Wyoming, Oregon, Michigan, Minnesota, California, Colorado and Nevada, well known lumbering states. The following extract from the Biennial Report of the Fish Commissioner of the State of Nevada plainly shows that effective laws are being enforced in that state:—

#### SAWDUST IN THE TRUCKEE RIVER.

"In my last biennial report I prominently set forth the abuses by California lumbermen, of depositing sawdust in the Truckee River. Through the efforts of the new California Fish Commission, actuated by a desire to aid Nevada, I am happy to report the abandonment of the pernicious practice of polluting this river with debris from the various saw-mills located along the banks. Through this new Commission my many protests and complaints at last found a successful hearing.

"The report of their Commission on this subject by Chief Deputy John P. Babcock, is as follows:—

"HON. GEORGE T. MILLS, Carson City, Nevada.

"MY DEAR SIR,—In reply to your letter regarding the condition of affairs on the California end of the Truckee River, let me state that the Commission have had the river well in hand all the season. There are no mills on the river that dump their sawdust into the stream. The Truckee Lumber Company are dumping their shavings from the factory into the river and we have protested vigorously against their doing so, and have perfected plans that will put a stop to it before next season, we hope.

"Richardson's mills and factory at Truckee are in excellent order; they burn all their dust and shavings. The Boca Milling Company are running their sawdust into a bulkhead and no sawdust reaches the river from their mill at present. The Pacific Wood and Lumber Company's mill at Burkhalter's Station has the finest sawdust conveyor I have ever seen. The mills of Prosser Creek, Cold Stream, and the other streams tributary to the Truckee River are all in good order so far as sawdust is concerned. I am told that the river is in better shape in California than for a number of years. The Commission have done and will continue to do all they can to see that sawdust is kept from the stream, and when we can prevent the dumping of shavings from factories into the river we will be satisfied with the situation. We are very anxious that all the dams in this river may be kept open and free for the passage of fish during the early spring, that the parent fish may have easy access to our waters during the spawning season. The Commission have planted 50,000 rainbow trout in the Truckee River during the season just closed."

## ESTIMATE OF SAWDUST MADE BY A MILL OF ONE MILLION FEET OUTPUT YEARLY.

The amount of sawdust deposited in a stream from a mill with an output of a million feet of lumber a year has been estimated by Mr. John W. Titcomb, and published in a letter to the *Sawdust Gazette*, of Burlington, Vermont :—

“Let us, for example, take a small trout stream with one saw-mill in it. The output of the average mill is 1,000,000 feet of lumber. About one-sixth of the output is waste, making the entire output 1,200,000, of which 200,000 feet is sawdust and refuse. 1,000 feet in round numbers make a cord, so that the 200,000 feet is equal to about 200 cords. If the latter were condensed into one continuous bar 4 feet wide and 4 feet high, it would be 1,600 feet or more than a quarter of a mile long. Multiply this by the number of mills on some of our streams, many of them sawing two or three times as much lumber, and we have several miles of sawdust, enough to entirely choke up the average brook if poured into it at one time. I give these figures to show the amount of sawdust trout must contend with. We know that trout will exist in all mill-ponds, but it will be noticed that they are always in the running water where the supply is constantly renewed.”

## INLAND STREAMS.

The same reasons given for the enforcement of the law on waters that flow to the sea, apply for the enforcement of the statute in inland waters. Mr. Charles Wilmot, Inspector of Fisheries and Fish Hatcheries for Canada, in a special report upon the Châteauguay River and its tributaries in the province of Quebec, refers in the following language to the evil effects of sawdust upon fish life :—

“Every one who is acquainted with the habits of fish which frequent dull sluggish streams, such as the Châteauguay and English rivers, viz. :—Pickerel, pike, maskinongé, and suckers, knows that they are spring spawning fish ; they therefore seek their spawning grounds during high water and can go up these rivers as far as shown. These fish are to be found above all the dams on the Châteauguay and English rivers as well as below them, and until they are killed and destroyed by sawdust, and by every other unfair means that man could resort to during spawning seasons, they were quite numerous along the whole course of these streams. Even now, fairly good sport is to be had in some localities where sawdust has not injured the feeding and spawning grounds.

“Bass also frequent these rivers. Some years ago they were quite plentiful, but they are very scarce now. \* \* \*

“Until lately sawdust and mill rubbish was thrown into the Châteauguay and English rivers from every saw-mill along the streams. Since fines were imposed the rivers have been moderately free of it.”

Considerable difficulty has been experienced in the efforts to keep the spawning beds of the St. John River, in New Brunswick, clear of mill rubbish. Whilst it is possible to enforce the law in New Brunswick, the efforts of the Department of Marine and Fisheries are neutralized, to a large extent, by the great quantities of sawdust and mill refuse discharged into that part of the river which flows from the State of Maine. Mr. Wilmot, Inspector of Fisheries, reported in 1892, as follows ;—

“I beg to say, for over one hundred miles above Woodstock, sawdust is coming into the St. John from the State of Maine in large quantities. In June last lumber jammed the Aroostook Falls which held back twenty-five acres of sawdust and mill rubbish. This was all carried out into the St. John River with a heavy rise of water last month. The quantity of sawdust in the St. John River from mills on the Canadian side of the line, is small compared to that from the county of Aroostook, in the State of Maine.”

Negotiations with the United States were entered into in October, 1891, with a view of taking international action in waters that pass from one side of the boundary line to the other, and Commissioners have been appointed who will report to their respective Government the results of their investigations.

#### EXEMPTED RIVERS.

It has become a serious question for the department to consider, whether rivers which have for various reasons been exempted from the operations of the Act for the protection of navigation, etc., should be any longer exempted. The matter is all the more serious as large expenditures have been made in establishing and maintaining fish hatcheries in which not only one class but all the community is interested, fishermen as well as fish consumers. The importance of taking steps to enforce the Act becomes apparent when it is considered that fry cannot be utilized to replenish streams in which sawdust and refuse are permitted to escape from mills, and, as it is desirable that all parts of the country may be benefited by the operations of hatcheries, it appears almost indispensable, that action should be taken to enforce the Act on all waters in Canada, that are suitable for propagating fish and increasing this supply of human food. The efforts of the department to propagate fish by means of hatcheries have been partly neutralized by the pollution of streams by mill-owners who deem it necessary that the streams should be used to carry off their refuse.

#### CONTRIVANCES FOR DISPOSING OF SAWDUST.

The Annual Report of the Fisheries Department for 1890 contains diagrams of devices for catching sawdust and preventing it from falling into the water. The contrivances for carrying away the sawdust vary from very simple means, costing about \$350, to more complicated machinery, costing about \$1,500. A very inexpensive blower for removing shavings from planing mills, sawdust from saw-mills, etc., is used in some parts of Maine, Massachusetts and New Hampshire, U. S.

The following extracts are taken from letters which appeared in the *Sawdust Gazette* of November 1892, published in Burlington, Vermont:—

“The price of a blower for doing the work of taking sawdust from a saw sawing 1,000,000 of lumber per year, would be about \$45 per year, that size “E” blower. It would cost about \$6 to \$7 to set up the same in proper position and belt it, in addition to which it would cost 40 cents per running foot for galvanized iron conductory pipes from outlet of blower to end of discharge, which would vary in different mills from 10 to 100 feet.”

Another kind of blower is also referred to as follows, in the same paper:—“The expense of a blower large enough to take away the sawdust from a saw-mill cutting 20,000 to 25,000 feet per day would be about \$33 net F. O. B.”

“The pipe from such blowers is very often made of wood of one-inch boards at the mill itself; but, of course, it don't really cost very much to put it in under these circumstances.”

The question of disposing of sawdust is one which can be dealt with in the most practical way by mill-owners. From reports received from fishery officers of the department, it is found that in the majority of instances where the Act is enforced, mill owners have not experienced much difficulty in disposing of sawdust. From this fact it is concluded that obstacles alleged to be in the way of disposing of mill refuse and sawdust on rivers hitherto exempted from the Act, can be overcome at comparatively little expense and without serious injury to the lumber trade.



## OBSTRUCTIONS TO NAVIGATION.

Sawdust and mill refuse deposits in navigable rivers unquestionably form serious obstructions to all craft which use these streams. The reports of officers who have dealt with the question of sawdust in streams and rivers, contain numerous allusions to the injury which navigation has sustained by large deposits of mill refuse. In sluggish rivers which empty into the sea, the current does not carry off the sawdust before it becomes water-soaked, and it therefore sinks. In many rivers where the current is strong there are many indentations in the banks, also wharfs and projections which form eddies and return currents, and in these places the sawdust accumulates and is prevented from going down the stream while buoyant.

## FISH-WAYS.

The report of Mr. Robert Hockin, Fishery Inspector for District No. 2, Nova Scotia, on fishways forms Appendix H of this Supplement. It will be seen by reference to the report that the Hockin fishway has been placed in a number of rivers in Nova Scotia, New Brunswick, Quebec and Ontario, making twenty in all. Inquiry has been made by Mr. Hockin respecting the efficiency of the fish-way, and it will be seen by the correspondence with fishery officers that the Hockin fish-way is considered superior to others that have been tried.

The question of prescribing this fish-way for other streams is being considered, and if those already constructed continue to prove successful, instructions will be given to have them placed in a large number of streams.

## SEA AND INLAND FISHERIES.

At Appendix I will be found answers from fishery officers and others to a series of questions submitted by the department affecting both the sea fisheries of the Maritime Provinces as well as the inland fisheries of Quebec and Ontario.

The principal questions touched are the extent of the fisheries, the home consumption, the product dried or pickled used in Canada, as well as the quantity exported, the various prices of fish, the means of fostering depleted fisheries, the kinds of fishing crafts used, gear, etc., the number of men employed in the fishing industry, respecting oyster and shad fisheries, trap, nets, mackerel and herring nets, and the bait question.

The extent of our sea coast and area of inland waters are given as follows :—

## LENGTH OF SEA-COAST AND AREA OF INLAND WATERS.

	Miles.	Acres.
Nova Scotia.....	1,200	525,600
New Brunswick.....	550	98,900
Prince Edward Island.....	400	.....
Quebec.....	1,200	3,728,176
British Columbia.....	7,000	.....
Ontario.....	.....	3,881,729

## THE GREAT LAKES.

The great lakes separating the province of Ontario from the states of New York, Ohio and Michigan contains more than half the fresh water of the globe. They are as follows :—

Lakes.	Length, Miles.	Breadth, Miles.	Area, Square Miles.
Superior.....	390	160	31,420
Huron—with Georgian Bay...	400	160	24,000
St. Clair.....	25	25	360
Erie.....	250	60	10,000
Ontario.....	190	52	7,330

This chain of lakes extends over 1,000 miles. The total distance between the head of Lake Superior and the Straits of Belle Isle is given at 2,384 miles : 71 miles of this system of inland navigation is by canals.

The other principal large lakes of Canada are Lake of the Woods 1,500 square miles area, Winnipeg 260 miles long, 65 miles broad, with an area of 9,400 square miles ; Winnipegosis, 130 miles long, 27 broad, area 2,030 square miles ; Manitoba, 122 miles long, 24 broad, area 1,900 square miles.

Lake Athabasca has an area of 4,400 square miles ; Great Slave Lake, 10,100 square miles, and Great Bear, 11,200 square miles.

## FISH-BREEDING.

The usual report by the Superintendent of Fish Culture upon the fish-breeding operations carried on in the thirteen fish hatcheries of the Dominion in the year 1892, will form part II. of this supplement.

Several interesting papers touching this subject are annexed to this report ; the principal of which on the "*Artificial propagation of Marine Food Fishes and Edible Crustaceans*" was read before the Royal Society in June, 1892, by the Rev. Moses Harvey, LL. D. This article will be found of considerable interest to those concerned in fish-culture.

Another annex gives copious extracts from the report of the proceedings of the International Fisheries Conference held at Detroit, Michigan, in December last, indicative of the co-operation which may be expected from the contiguous states in the preservation of the valuable species of fresh water fish.

## CONCLUSION.

The usual statements relative to the expenditure and revenue of this branch of the Marine and Fisheries Department, the fishing bounty statements and the reports on the Fisheries Protection Service, and Fisheries Intelligence Bureau have already been published in Part II. of the annual report issued during the session of Parliament. Continued reports to date of issue on the Behring Sea question, the Russian seizures, the Newfoundland Bait question and International Legislation will also be found published in the main report.

I have the honour to be, sir, your obedient servant,

WM. SMITH,

*Deputy Minister of Marine and Fisheries.*

APPENDIX A.

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NOVA SCOTIA.

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District No. 1, comprising the four counties of the Island of Cape Breton.—Inspector A. C. Bertram, North Sydney.

District No. 2, comprising the counties of Cumberland, Colchester, Pictou, Antigonish, Guysboro', Halifax and Hants.—Inspector Robert Hockin, Pictou.

District No. 3, comprising the counties of King's, Annapolis, Digby, Yarmouth, Shelburne, Queen's and Lunenburg.—Inspector J. R. Kinney, Yarmouth.

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DISTRICT No. 1.

ANNUAL REPORT OF THE FISHERIES OF CAPE BRETON ISLAND,  
COMPRISING THE COUNTIES OF CAPE BRETON, INVERNESS,  
RICHMOND AND VICTORIA, FOR THE YEAR 1892, BY INSPECTOR  
A. C. BERTRAM.

NORTH SYDNEY, C.B., 31st December, 1892.

HON. CHARLES H. TUPPER,  
Minister of Marine and Fisheries, Ottawa.

SIR,—I have the honour to submit my annual report of the fisheries of District No. 1, comprising the counties of Cape Breton, Inverness, Richmond and Victoria; together with synopses of the reports of overseers and tabulated statement giving the products of the fishery for the year just closed, in kinds, quantities and values.

It will be observed that the results do not differ materially from those anticipated in my preliminary report, which I then made as full as possible, and consequently I do not report at such length as I should have had I not sent in that report.

The total product for 1892 amounts to \$1,047,042.35, showing a decrease as against 1891 of \$39,679.55, and compared with the product of 1890, a falling off of \$463,533.52. It will appear that while the decrease in the catch of 1891 was largely confined to Richmond county, the law of compensation this year gives that county the distinction of being the only county showing an increased production. At first sight this large falling off in value of production is alarming, but I think I can in a great measure account for this state of things later on, simply calling attention just now to the decreased number of men engaged in the fisheries in 1892 as against 1890.

Cape Breton's natural advantages and superiority over any part of the Dominion, as a basis from which to prosecute the deep-sea fishery, are so apparent, I make no doubt that many wonder why more of the people do not engage in the industry than the statistics disclose. Their wonder increases when they see that instead of the number of fishermen increasing yearly they are, on the contrary, decreasing. In 1890 there were 8,910 men and boys engaged in the fisheries; in 1891, 8,252; while in 1892 the number fell to 7,876. The reasons for this regrettable state of things are obvious. For some years past, from various causes the fisheries have proved a far from successful business for those engaged therein. A stormy season, scarcity of suitable bait at the proper season, and the fact that the ice often remains around the shores of some parts of the island long after the fishing season opens, contributes materially to this result.



The mineral resources of the island are well known, and in Cape Breton county the coal industry has been unusually active since 1880, and naturally the surplus labour gravitates to industrial centres where the labourer receives a quick return for his hire ; while at best the fishing business is precarious and those engaged therein cannot look for return before the end of the season.

These causes sufficiently account for the falling off in the number of persons engaged in the fishery.

It will be observed by the table below that the yield per man in Inverness and Richmond counties is appreciably greater than that in the counties of Cape Breton and Victoria.

Counties.	MEN.		In-crease.	De-crease.	YIELD PER MAN.		In-crease.	De-crease.
	1891.	1892.			1891.	1892.		
Cape Breton .....	1,652	1,531	.....	121	118·73	116·88	.....	1·85
Inverness.....	2,437	2,091	.....	346	141·03	162·14	21·11	.....
Richmond.....	2,150	2,412	262	.....	138·91	153·79	24·88	.....
Victoria .....	2,003	1,883	.....	170	123·83	91·15	.....	32·68
Totals.....	8,242	7,868	262	637	.....	.....	.....	.....

I am looking forward to being able to report there being built here one of the fish freezers and cold stores, the plans and specifications of which were published in the annual report of last year. From what I learn of the success of one built at Canso, it is looked upon as being a successful venture by parties here not otherwise engaged in the fisheries, and they inform me they hope to have one in readiness for next season.

CODFISH.

Taking the different kinds of fish in the order of their values as exhibited in the returns, I find that the codfish catch did not come within 8,304 cwts. of the quantity taken the previous year. Considering the lessened number of men employed in 1892 as compared with 1891, I find that the yield per man is about equal in 1892 and 1891. The forecast given in my preliminary report turns out to be correct, while the results are a natural sequence of the causes therein stated.

MACKEREL.

There is an appreciable increase in the number of barrels of mackerel taken during the past season, the total being 12,450 as against 8,128 barrels in 1891. Unfortunately the prices obtained for the fish were much lower than those of 1891, and consequently the fishermen did not do much better in comparison with the previous year. The increase in the product of this important fishery is worthy of note, in view of the oft reiterated statement that they are not now as plentiful as formerly.

HERRING.

The catch of herring failed to come up to that of 1891 by 5,171 barrels ; the catch of 1891 being 31,326 barrels against 26,155 barrels in 1892. As explained in my preliminary report, the shortage occurred principally in summer herring.

LOBSTER CANNING.

I was enabled to deal with more accuracy with the result of the season's work in the lobster canning business in my preliminary report than with any of the other leading branches. The statistical table shows a total catch of 1,016,255 cans as against 1,339,565 cans in 1891. Several of the canning establishments have closed down owing to financial difficulties, and I do not anticipate there will be as many engaged in putting up lobsters in 1893 as in 1892.

Heretofore the smelt fishery has only been prosecuted in one district, but this autumn licenses for bag-net smelt fishing were applied for to fish in several other districts of this island. This fish in a frozen state is shipped in boxes by rail to the markets of the United States, and the smelt fishery is likely to become an important winter industry with some of the Cape Breton fishermen.

There is no reason why our waters should not supply the markets in the cities and towns of Canada with fresh fish in winter. In the Bras d'Or Lakes there is abundance of excellent cod which can easily be taken through the ice, and now that we have rail facilities can be shipped fresh to those markets. Last winter a car of frozen cod was sent to the Toronto market, but it appears that owing to mild weather the fish became slightly damaged, resulting in a poor sale and loss to the shippers. There appears to be no reason why a successful business should not be established in the frozen fish industry during cold weather, as fish are always plentiful and good markets available.

## SYNOPSIS OF FISHERY OVERSEERS' REPORTS FOR THE ISLAND OF CAPE BRETON.

### CAPE BRETON COUNTY.

*Overseer Francis Quinan*, of Sydney, reports that the past season has been the poorest season's fishery in his experience, and particularly in regard to the mackerel, herring and halibut branches of the fishery. Fishermen cannot assign a reason why those fish were so scarce. Salmon and alewives statistics show an increase over the past year. The season was also poor for the lobster fishery in his district, but those taken were larger than in previous years. The small catch, and frequent storms, caused the factories to close down earlier than the prescribed date of closing. Dog-fish made their appearance in large numbers on the coast, after an absence of many years, and interfered with the fishery. The river fishery was poor, owing to the long-continued drought.

*Overseer Alexander McDonald*, of East Bay, reports a decrease in the catch of the deep-sea fishes in his district. The decrease in the cod fishery, he attributes to scarcity of fish and bait. The herring fishery was a failure, these fish not striking into the harbours and bays as formerly. Mackerel struck in fairly plentiful in his district, but their stay was short. They were found more plentiful this season in shoal water than in deep water where fishermen usually set their nets. The result was a smaller catch. The lobster fishery was up to the average catch of former years, and would have been larger if bait had been more plentiful. In the inland waters of Bras d'Or Lakes, winter fishing was more vigorously prosecuted than formerly, and fair prices were obtained by those engaged in the fishery. Alewives were more plentiful than during the past few years, and many good hauls were made by the inhabitants. These fish are used for food and bait purposes. In the early part of the season the rivers were well stocked with trout, but the heavy midsummer drought caused low water, and the midsummer runs of these fish did not enter the rivers, thus causing poor angling for sportsmen. The overseer reports the regulations well observed in his district.

*Overseer Wm. Burke*, of Mira Ferry, reports the catch of cod, haddock and herring in his district below the average. The July herring fishery was a complete failure this season, as was also the September catch of this fishery, particularly in the district of Scattarie. The salmon sea-coast fishery was, this season, a total failure, but in Mira Bay a catch slightly above the average was taken. This run, however, was of small size, supposed to be the product of the Sydney hatchery. The lobster fishery was also below the average. The crustacea was scarce, and the want of bait militated against the fishery. The catch of spring mackerel of Louisburg and Big Lorraine was the best known for many years. At Little Lorraine, Bauline, Main-à-Dieu and Scattarie, this branch of the fishery was poor. Dog-fish visited his section of the coast in immense numbers, and caused some destruction to fishermen's nets, and in some instances prevented fishermen from setting nets for herring. Caplin visited the district in July for the first time in many years, affording a good supply of bait to fishermen.

*Overseer Richard Hickey*, of North Sydney, reports a slight increase in the catch of cod and haddock in his district, over the previous year. He regrets, however, to be obliged to report a decrease in the mackerel, herring, halibut and lobster fishery. The lobsters were scarce, and the run small, and fully half of those which entered the traps were under the prescribed nine-inch limit and had to be liberated by the fishermen. Heavy storms prevailed during the latter part of June, causing considerable destruction to the gear of the lobster fishermen. The result was the packers closed down two weeks before the prescribed date of closing.

One of the most important branches of the fishery industry in his district is that known as the "midsummer herring fishery." About the last week of June, or the first of July, schools of large fat herring usually enter the bays and harbours, affording an opportunity, not only to professional fishermen, but also to the farming population, living adjacent to the sea-coast, to catch many barrels of these fish, which when well cured, find a much larger market and command a higher price than the best Labrador herring. This year, however, the fish did not strike in as usual. Whether or not their course was diverted by a heavy easterly storm which prevailed at the time or other causes, the fishermen are not able to account for the absence of these fish from our waters this year. In the month of September large schools of dog-fish visited the coastal waters of his district returning after an absence of thirty or forty years. These specimens of the finny tribe are unwelcome visitors to our waters, as they frighten away other fish and are destructive to fishermen's nets.

#### INVERNESS COUNTY.

*Overseer D. F. McLean*, of Port Hood, reports a considerable increase in the catch of salmon, mackerel and alewives for 1892 over that of the preceding year. In nearly all other branches there has been a considerable decrease. The run of "spring herring," which has always been taken in abundance in his district, was this year a total failure. This class of fish is usually used for bait, and many Canadian and American fishing vessels were in former years supplied therewith, paying considerable money to local fishermen which has thus been lost this year. It is also a matter of regret that there has been such a large decrease in the catch of lobsters. It is contended by many old and experienced fishermen that the scarcity of lobsters was largely due to the fact that no spring herring spawned on the coast this season. He thinks there is a great deal of force in the contention, as lobsters were taken in large quantities in other districts where the run of spring herring are known to have spawned. There were seven lobster factories in operation in his district during the past season, in which 140 hands were employed besides the usual fishermen. The increase in the catch of mackerel would indicate that the law prohibiting the use of purse-seines is already bearing fruit. The violations of the regulations were duly reported and the offenders punished. Owing to a dry midsummer causing little water in the streams, very few trout or salmon ascended there until October, when the water became higher. There was one trap-net under license in his district during the season. The value of the fish taken in this net aggregated \$757.

*Overseer James Coady*, of South-west Margaree, states that the statistics of his district this season show a total increase of \$2,473.84 over 1891. The increase is in the branches of lobsters, salmon and alewives. Three new lobster factories in operation in his district this year accounts for the increased catch. This branch of the industry was not, however, a profitable one owing to a short season and blustery weather.

Salmon net fishing on his section of the coast was better than for some years past and exceeded the total catch of 1891 by over 9,000 pounds. On account of the extreme dryness of the season very few salmon entered the river the first part of the season. During the months of September and October the rivers were well supplied with water, salmon entered in large numbers; as a result the rivers were never noticed to be so well stocked with parent fish, which were well protected by special guardians. The catch of alewives was the largest for many years, and exceeded that of the previous year by 400 barrels. The catch of mackerel and herring was less than the previous year. Cod fishing in the northern end of the district was about the same as 1891. In the southern



and of his district a large number of those usually engaged in cod fishing were engaged in the lobster fishery and also a number were employed on Government works, thereby causing a falling off in the catch of codfish by about 50 per cent. All other kinds of fish not referred to in the foregoing shows about an average catch compared with last year.

*Overseer David Ross*, of North-east Margaree, reports an increase in the catch of codfish in his district over the previous year of 7,000 quintals. The catch of salmon by net fishing in outside waters has also been better than that taken in the previous year. But net fishing in the tidal waters inside, as also surface fly-fishing was a failure owing to the drought which prevailed during midsummer. He reports the catch of mackerel and herring as below the average; that of mackerel being 1,100 barrels less than in the season of 1891. In consequence of two more additional lobster factories being operated in his district during the past season, the catch shows an increase in this branch; but the season was not a more profitable one, notwithstanding. Lobsters were not found plentiful, and heavy gales damaged the fishermen's gear. The regulations were well observed throughout the season.

*Overseer Lewis McKeen*, of Mabou, reports that the total value of fish caught in his district is considerably less than in the season of 1891. In the coal mines district the majority of fishermen devoted a great deal of attention to mining, while at Mabou Harbour the extensive gypsum works employed numbers of men who formerly prosecuted the fisheries. Fish of all kinds were found to be much scarcer than usual. Dog-fish were found to have been more numerous than they have been for forty years. Fishermen have no doubt that the presence of these fish on the coast had much to do with the limited quantity of fish taken, excepting shell-fish. Two lobster factories operated in his district during the season. The catch was small, one of the factories canning less than one-fourth the quantity canned in the season of 1891. The rivers in his district were not well supplied with trout owing to the drought during the months of July and August, and as a result fly-fishing was also poor.

*Overseer Peter McEachen*, of Glendale, reports a much smaller catch of trout in his district than during the year 1891, but a most satisfactory increase in the take of oysters. The fishery regulations were well observed.

#### RICHMOND COUNTY.

*Overseer D. Cameron*, of St. Peter's, reports a decrease in the catch of cod and haddock in his district of 3,000 quintals, compared with last year. In other branches of the fishery industry there was not an average catch. His former district has been divided, leaving the western section thereof under his charge. The fishery regulations were well observed.

*Overseer Alfred Lenoir*, of Arichat, reports a poor year for the fishermen in his district. The lobster fishery commenced as early as the month of April, but the year's operations show a catch below the average, owing principally to the run of small lobsters. The catch of mackerel and herring was hardly an average one. Codfish were very scarce, and haddock, which are usually plentiful in the waters of his district, was a total failure. Fishermen cannot assign any cause for the scarcity of fish on the shore banks this year.

*Overseer John Murchison*, of Grand River, reports a large increase in the catch of mackerel in his district over that of last year, an average catch of cod, and a decrease in the catch of herring, haddock and lobsters. The fishermen engaged in the latter branch complain of a short season, being about one and one-half months. The catch of salmon was below the average also, owing to a decrease in the number of people engaging in this fishery. Large numbers of salmon visited the Grand River during the season and ascended as far as the falls, but owing to obstructions could not reach the upper waters of Loch Lomond. He reports also an obstruction on the Larcheveque River, the outlet of Ferguson's Lake. The cost of removing the latter would not, he thinks, exceed \$100, and would afford improved spawning grounds to fish. The increase in the catch of mackerel, and the fairly good price obtained by the fishermen for their fish will go a long way to make up the deficiency in other branches. The fishery regulations were well observed during the season.

## VICTORIA COUNTY.

*Overseer Duncan McDonald*, of Aspy Bay, reports an increase in the catch of cod and haddock, while that of mackerel and herring show a decrease. The present has been the poorest season for the mackerel and herring fishery the fishermen of this district have experienced for many years. The spring run of mackerel was light, but in August and the early part of September they made their appearance in the bays in large numbers but would not take the hook freely. Later in the season the weather became blustery, and with the unusual presence of dog-fish in the coastal waters, the net fishing proved a failure, resulting in a poor mackerel fishery for the whole season. The decrease in the catch of herring is due to the fact that those fish did not make their appearance as usual in large numbers in the bays. The increase in the catch of cod and haddock, however, will make up to some extent for the falling off in other branches.

The lobster catch was light in proportion to the number of men and the capital engaged in the industry. Packers complained of the scarcity of lobsters throughout the season. Salmon show a slight increase over last year's catch, and would have been greater were it not for stormy weather in the month of June. Many young trout and salmon perished in Grey's Brook, Aspy Bay, during the dry season in midsummer when the brook became dry. He is of opinion that something might be done to prevent a recurrence of this incident.

*Overseer Wm. Bingham*, of Englishtown, reports a marked decrease in the various branches of the fisheries in his district, the average catch being about two-thirds less than in the year 1891. The run of spring herring was fair, but the demand for these fish for bait purposes was not great, resulting in a loss to the fishermen of the district who have been in the habit of supplying vessels every season which called at St. Ann's for bait. The summer run of herring did not strike into the harbour of St. Ann's as formerly, but some were taken near Indian Brook. Possibly their course was diverted by vessel fishing at this point. The cod fishery during the summer was also a failure, but towards autumn these fish became more plentiful and fair daily catches were made. A few barrels of spring mackerel were taken, but the summer and fall mackerel fishery was a complete failure. The catch of salmon was also below last year's catch. Squid, which is the best article for bait known, was scarce in July, but later in the season it became so plentiful as to interfere with the fishery, the codfish feeding so largely thereon that they would not take the hook. Lobsters were very scarce, the result being that packers canned only one-third as much as the previous year. The two fish-traps licensed in the harbour and bay did not prove as remunerative for the owners as was expected, owing to scarcity of fish and high gales. The regulations respecting river protection were carefully carried out.

*Overseer Donald McQuarrie*, of Middle River, reports a falling off in the fisheries for the year in his district. With the exception of Grand Narrows and McKinnon's Harbour, the fish taken in his district is mainly used for home consumption. Last winter being mild, the inhabitants caught large quantities of cod and herring in the Bras d'Or Lakes. Most of these fish were used for home consumption. A larger quantity of oysters were taken in his district than in 1891. The catch of alewives was smaller than for the past two years. In the Baddeck and Middle rivers trout did not ascend as usual in midsummer owing to the long-continued drought, the water being low and clear. When the fall rains began, both salmon and trout entered these two rivers in large numbers, and ascended the upper waters to the spawning grounds.

The staff of special guardians appointed on the river did good service in protecting the fish which would otherwise have been disturbed and killed.

I have the honour to be, sir,

Your obedient servant,

A. C. BERTRAM,  
*Inspector of Fisheries.*

## DISTRICT No. 2.

ANNUAL REPORT ON THE FISHERIES OF DISTRICT No. 2, OF NOVA SCOTIA, COMPRISING THE COUNTIES OF CUMBERLAND, COLCHESTER, PICTOU, ANTIGONISH, GUYSBOROUGH, HALIFAX AND HANTS, FOR THE YEAR 1892, BY INSPECTOR ROBT. HOCKIN.

PICTOU, N.S., 31st December, 1892.

Hon. CHARLES H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit herewith my fourth annual report of the fisheries in District No. 2, province of Nova Scotia, together with tabulated returns, showing quantities and values of each kind of fish caught, as well as comparative tables, showing the increase and decrease of the fisheries in each county; also, the increase and decrease of the catch of each kind of fish.

The returns have been carefully compiled from reports submitted by overseers, excepting in two cases. Owing to the temporary absence of these officers, the appointment of special enumerators was necessitated, and responsible and respectable men were engaged for this purpose.

The value of the catch for 1891, as reported, was \$1,640,912, and the average annual yield for the past seventeen years has been \$1,650,915. The value of the catch for this year is \$1,357,208, being \$283,704 less than last year, a decrease of 17 per cent. It is less than an average catch by \$293,707, or about 18 per cent.

In four of the seven counties of this district, viz., Antigonish, Colchester, Guysborough and Hants, there is an increase aggregating \$52,412; in Pictou and Cumberland, a decrease of \$17,280, while from Halifax county alone, the reported decrease is \$317,836, and this chiefly from West Halifax, attributable to an almost entire failure of the fall mackerel and short catch of deep-sea fish, because of the scarcity of bait, for, while in the reports from the state of Massachusetts the abundance of herring is noted, and there was an abundance of these fish in other parts of this district, they do not seem to have visited that part of Halifax county bordering on St. Margaret's Bay,

The entire catch of the cod family is valued at \$322,947 as compared with \$425,293 for last year, a decrease of about 24 per cent.

I find so little general knowledge with regard to the spawning of these fish that it may be well to quote the result of expert inquiry from the *Encyclopædia Britannica*, Vol. IX., page 244:

"It was stated by Professors Huxley and Allman, in 1867, before the Select Committee of the House of Commons on the sea-coast fisheries (Ireland) Bill, as within their personal knowledge that fish ova had been found floating at the surface of the sea, and that the ova they had met with were, in all cases, alive, and some of them in an advanced state of development. Reference was, at the same time, made to the observations then recently recorded by Norwegian naturalists on the spawning habits of the common cod, leading to the belief that spawning at the surface was by no means uncommon with our sea fishes. These investigations have been systematically carried on during the past ten years by Professor G. O. Sars, of the University of Christiania, and have resulted in some unexpected discoveries.

"The seas in the neighbourhood of the Loffoden Islands, on the coast of Norway, had long been known to be a great place of resort for cod during the spawning season, and in 1864 Professor Sars commenced his work there, and by means of a small surface towing net he obtained plenty of the ova of the common cod floating on the surface, examples in various stages of development were procured, the young fish were successfully hatched out and the species identified beyond a doubt.



"Subsequent observations fully confirmed the accuracy of the conclusions previously arrived at that the cod spawn was not deposited on the ground, but floated freely at or near the surface.

"In 1865 the same observations were made of the ova of the haddock, and it was satisfactorily proved that they went through all their stages of development while floating at the surface in precisely the same manner as in the case of the cod.

"Sars was at first inclined to believe this development of the ova while floating at the surface was peculiar to the members of the cod family in its restricted sense; but in the summer of 1865, he visited the southern coast of Norway during the season for mackerel and found abundant evidence of the same rule obtaining in that widely distinct fish. In the case of the mackerel the spawning actually takes place at the surface; but with the cod family, we believe the operation has not been so distinctly observed.

"The ova, however, are undoubtedly met with at the surface and at a short distance below it.

"M. A. W. Malin, of Gothenburg, also independently ascertained that the ova of that essentially ground fish, the plaice, follow the same rule of floating at the surface."

"Sars has pointed out that the development takes place at the bottom in the case of those fishes especially, whose ova are cemented together by a glutinous secretion, and he mentions as examples the herring, caplin, &c., &c."

"If floating near the surface be the rule with the spawn of the cod and haddock, there can hardly be a doubt about its being so likewise with the ova of ling, whiting, pollack and hake, all belonging to the same family."

"Again, halibut, plaice and flounders are all closely allied, and there can scarcely be a doubt that the same rule applies to all which Sars and Malin have established in the case of the plaice, one of the most typical of this group of fishes."

"We know that the spawn of herring is commonly found at the bottom, although it by no means follows that the parent fish is there when the ova are excluded; for the full herring is frequently taken in drift nets which are very near the surface, and these nets are often covered with small lumps of spawn.

"At the same time the specific gravity of herring spawn is greater than water, and it sinks to the bottom sooner or later if nothing intercepts it. There is no evidence of its ever floating at or near the surface as is the case with that of the cod."

Having further reference to the spawning of mackerel, same work, vol. XV., page 159, it is stated that: "Vicinity of land or shallow water are not necessary conditions for the oviposition of mackerel; they spawn at the spot which they happen to have reached during their wanderings at the time when the ova have attained their full development, independently of the distance of the land or of the depth of water below them, as the ova float and the embryo is developed on the surface of the water."

In support of the above contention, it is stated that when mackerel strike the coast in the spring, it is in search of food and not for the purpose of spawning. In this connection I desire to bring to your notice a fact which has come under my own observation and which would seem to indicate that these fish are either on their way to their spawning grounds or are going northward for spawning purposes, perhaps until they arrive in waters of the required temperature.

Mackerel are taken in June full of spawn in the Chedabucto Bay, and it is said all along the coast of Cape Breton they are in the same condition, and are fished there and at the Magdalen Islands, until the latter part of June or first of July. They then disappear and when caught on their return they have no matured ova in them.

When they strike the coast in the spring months, they pass right on northward, and do not linger for food as they do on their return. One is therefore almost forced to the conclusion that the primary object of the fish is to reach its spawning grounds and not merely search of food, and that the waters frequented for this purpose are those of the Gulf of St. Lawrence.

The catch of mackerel in this district has been less than last year by nearly 50 per cent, and a large proportion of those taken were caught in the spring months; the fall fishery was almost an entire failure.

Of herring, on the contrary, the catch was unusually large. The quality, however, did not equal the quantity. This fish is at its best in July, during which time very few were taken on the Atlantic coast. The fish were unusually abundant in the Straits of Northumberland.

Squid were exceedingly abundant; so much so as to render the catch of little value to our local fishermen who supply the fish to bankers, for they were able to supply themselves. In some instances, too, the presence of these fish led to the destruction of many nets because of the voracious dog-fish tearing the nets when feeding upon the fish taken in them. Prices ruled low.

#### LOBSTERS.

With regard to the spawning of lobsters the following extracts from the report of Mr. S. Garman, of the Museum of Comparative Zoology, Cambridge, Mass., to the Fishery Commissioner of Massachusetts, Hon. E. A. Brackett, are interesting and worthy of consideration:—

"According to the arrangements made some of the eggs from berried lobsters kept for the purpose were sent me at regular intervals through an entire year. These eggs were at once examined to note their progress in development, and they were then preserved by various methods for future study and comparison. After their young were hatched the females themselves were dissected to observe the condition of the ovaries and to determine the time when another lot of eggs might have been expected from them. As our work began in mid-winter it was necessary to follow certain specimens up to the hatching and to take others to complete the series from the laying. Eggs supplied me as freshly laid were so far advanced as to indicate that fertilization had taken place before they were placed under the tail of the lobster bearing them. The time and process of fertilization has not been discovered, but in all likelihood the marine lobster does not differ greatly in these respects from its fresh-water relatives the cray fishes. \* \* \* \* \*

"The development of the embryo in eggs laid on the 7th or 8th of August, was so rapid, that, on the 3rd day of September, the eyes were visible as thin crescent-shaped spots. As the water grew colder, the progress was retarded, until the changes were very slight indeed. This condition was maintained throughout the winter, and it was only when the summer temperature was reached that rapidity of advancement was again to be noted; the young began to hatch on the 14th day of July, all of the eggs on a female seeming to be about equally advanced; the entire brood emerged at very nearly the same time.

"Examination of the ovaries after their young had left showed that the females would not have laid eggs again for a year, that is, not before the summer next following that in which they had hatched a brood. In other words, the dissection proved that the lobster lays only once in two years, hatching a brood one summer and laying eggs the next following summer for another brood."

The returns of the catch of these fish in this district exhibit a decrease of about 12 per cent as compared with last year, although they equal the catch of 1890. This decrease has not been local, but has applied generally to that portion of this district upon the Atlantic coast, and upon the Straits of Northumberland, indicating that this fish has a greater range of movement than has been supposed. If it was of so local a character as has been judged by some we would expect to find good fishing in one part and poor in another, but this, at any rate this season, does not seem to have applied to this fish more than to any other.

With regard to the regulations, the season has been well observed in the Straits of Northumberland, and upon the Atlantic coast it has been nearly as well. In fact the nibbling which is done by means of tan pots on islands along this coast does not amount to the output of one factory in season. Nevertheless stringent measures have been adopted to suppress this, the most effective of which has been by the cutters.



The difficulty of engaging proper persons to undertake the enforcement of a complete observation of the law, is owing to the fact that in these localities the uneducated population have no desire to see the law observed. There is in most of the settlements no public sentiment in favour of the regulations. It has been well said that an act may be made punishable to any degree by statute, but to stamp it with the stigma attaching to the word crime a public sentiment is indispensable where the packing is in the hands of small dealers; there we have most difficulty, for they are generally disposed to sacrifice the most important future interests to the present moment.

Apart from the fact that the fish in the fall months are not equal in quality to those in the spring and in size, three in the fall are not in weight equal to what two of them would be if left to the spring, there is this which seems to be lost sight of by those who advocate a month's fishing in the fall. If all fished, and the same number of traps set as in the spring months, the additional quantity placed upon the market would be enough to lower the present price; for witness the effect of the extension of the season in 1891, and how quickly the buyers dropped the prices when it was found the supply would be greater than usual. The effect would, therefore, be that the additional labour would bring no compensation.

In the interest of those who observe the law a stringent enforcement is necessary. Nothing is so aggravating to a law-abiding fisherman as to see the lawless element profit by their lawlessness.

#### SALMON.

From the whole district the returns show an increase of about 6 per cent, and from those counties upon the Straits of Northumberland an increase of about 50 per cent, and this under the adverse circumstances mentioned in previous reports; and not only has there been an increase in the catch, but the officers report that in the rivers during the time they ascend for spawning the fish were unusually abundant, so that it appears that some returns are being made for the care that this fishery has received at the hands of the department.

As an instance of what may be done in the way of fish culture, I wish to bring to your notice one circumstance which came under my observation this season.

On the Magaguadavic River, New Brunswick, there are falls which under ordinary circumstances are impassable, but owing to a wing dam being constructed a large volume of water is directed through a gap, the bottom of which is some 6 feet above the surface of the water below, and when there is a full head of water it flows through the gap 5 or 6 feet deep. There is no pool below where salmon can linger, make a rush and leap into this volume of water; nevertheless, relying upon the statements made to me by a number of respectable people whose statements agree and are not to be doubted, salmon were seen jumping in the waters above this gap, and they could not have got there except through the gap. This is interesting, because it demonstrates that the powers of salmon to overcome obstruction has been underestimated by those who have given no attention to the subject; secondly, it proves that fry deposited in new waters return to that river.

It has been asserted by some that if the fry from a fish taken in one river are deposited in another that in its adult stage it will seek the waters of the mother fish.

This completely does away with this argument, because in the memory of man salmon have not been seen in these waters, and there can be no room for doubt but that these are the adult fish of fry deposited some four years ago in these waters.

The value of the catch of salmon in my district is \$45,000, and by rendering the obstructions in the rivers passable it ought to be an easy matter to double the value of the annual catch by an expenditure in constructing fish-ways which would not amount to half of one year's production. The work of constructing fishways is progressing as fast as possible, but under most favourable circumstances is slow. When it is remembered that it is only possible to do this work in one or two months, and that mill-owners generally manage by promises to perform by appeals for delay and otherwise to postpone the work for a year after notice has issued, it will be seen that rapid progress is almost impossible.



## SHAD.

We have this year a return of 1,811 brls., as compared with 1,178 for last year. This is the largest catch since 1885, and being about 50 per cent over that of last year, which in turn was 50 per cent over that of 1890, and yet the known conditions are the same.

## SMELTS.

The quantity taken in this district is never very great, but this year it has been 30 per cent less than last, not because the fish were not present in our waters, but because of the mildness of the weather. Ice did not form strong enough to permit of bag-net fishing, by which means they are generally captured.

## SPECIAL GUARDIANS.

In most of the counties in my district the office of warden has been abolished and instead of employing men to take care of a river for so much per annum, guardians are employed and paid according to the amount of time devoted to the work.

This has largely increased the responsibility and work of this office, and the duty of seeing that the public receive value for the money spent in protecting the rivers is one involving considerable unpleasantness and doubtless annoyance to public men and members of parliament. Still it is admitted that the result has been better work, and honest men who mean to do their work properly have no cause for complaint, the howling comes from those who are wont to draw their salary as a pension.

During the past year the inspector has travelled, in connection with the work of the department, by railway 7,235 and by highway 945 miles, and besides examining diaries of special guardians, making up their accounts and forwarding cheques, making plans for construction of fish-ways, and official reports, has conducted correspondence covering 1,210 pages of the letter-book.

## ANTIGONISH.

*Overseer John McDonald* reports that in the early part of the season fish were scarce, excepting herring, which were very plentiful but of little value except for lobster bait, being very poor at that season.

In the early part of the season the lobster fishery was about up to the average, but as the season advanced the fish decreased in size and number and fishermen reported that they were throwing overboard double the number that they were taking to the factories. He advocates shutting down the factories for a year or two.

The salmon fishery has been better than for years, particularly at the eastern part of the county, probably because the larger rivers flow into the straits at this part.

Hake were plenty, but scarcity of bait prevented larger catches.

Mackerel will, he fears, in a few years be a thing of the past. In former years they could be seen schooling close inshore; now, and for several years past, very few have been taken.

Three new lobster factories were started this season.

The river wardens report no violations. There were some nets set contrary to law near the mouth of some rivers, which were seized and destroyed.

He has inspected a number of fish-ladders, but found none of them efficient, and he asks that new fish-ways, of the latest approved design, be built where practicable.

## COLCHESTER.

*Overseer Henderson Gass* says the rivers in his district have been constantly watched by special guardian, nevertheless some disguised persons attempted to fish.

The fish-way in Balfour's mill-dam has not been rebuilt, although notice was served upon the mill owners. They promise to put one in next summer. William Porteous has not yet constructed a fish-way in his dam, although notified to do so; but he also promises to proceed next summer, when he intends building a new dam.

Herring were very scarce. No mackerel were taken in Tatamagouche Bay.

Quite a quantity of oysters were raked, and unless a lease is given to some parties thus protecting the beds they will soon be depleted.

*Overseer Davidson* says shad made their appearance early in July, the best catch being about the middle of the month. One weir took 2,800 shad of very large size in

one tide. The fish, however, did not stay long but disappeared about 1st August. The increase has been considerably over last year, but at this rate it will take a long time to return to the catches in a single season of 3,000 to 5,000 barrels. This year it was about 1,100. He considers that if the shad were protected in the rivers they frequent to spawn, the increase would be much more rapid. This year the shad taken were marketed at home.

Salmon were a little more plentiful and it was not a good year for poachers, for when the rains came the rivers became quite high and salmon passed where they were generally taken.

A number of fish-ladders are required in this district, and notices have issued for their construction upon the important rivers.

*Overseer Pollock* says there have been fewer salmon in the Stewiacke River this season than last. Gaspereaux were more plentiful, and those taken found a ready market in Halifax for bait.

There were more and larger shad taken than last year, and trout were plenty in all the important streams.

#### CUMBERLAND.

*Overseer George Gilroy* reports salmon were plenty when the rains set in. The poachers were numerous, and the two guardians on the river were on one occasion overpowered by a number of them, so disguised that it was impossible to identify them.

The fish-way at Oxford, in Ripley's dam, has been kept in good repair, but in the Wyall dam, now owned by Richard Thompson—who intends repairing it in the spring—a fish-way will be required.

*Overseer Wills* has been vigilant in enforcing the regulations regarding smelts and lobsters, and inflicted a number of fines.

*Overseer Murphy* says alewives were scarce but herring were more plentiful. An increased quantity of oysters was taken. Lobsters were scarcer than last year. There were eight canning establishments operating this year, comparing with four last year, yet the returns show a falling off in the pack.

Salmon were very plentiful, but it is almost impossible to prevent a certain amount of poaching, as the poachers keep some of their number on the watch and take any fish they can. The fish-ladders are getting old and useless, and new ones are required. Some poachers were caught, their names reported, and proceedings against them instituted.

*Overseer Fowler* has been active in enforcing the law in his district. He finds some violations of the Act respecting the disposal of saw-dust, which were reported and the parties fined.

#### GUYSBOROUGH.

*Overseer McQuarrie*, in submitting his report, says that in his district the mackerel, alewives, cod and lobster fisheries all show a decrease, amounting to \$10,000 in value. The shrinkage in these fisheries was somewhat compensated by an increase in the catch of herring of 6,000 brls., most of which were fall herring, taken about Holland's Harbour, a few miles east and west; large schools visiting this locality, and this only, as far as is known. Cod fishing was a failure. There are now no large boats, and the small boats used in the lobster fishery are not adapted for deep-sea fishing. This order must be reversed if there is to be success in deep-sea fishing.

The rivers and streams were very low, but when the fall rains set in large numbers of salmon are known to have gone up without interruption, as the special guardians were on the alert, and kept the streams free from nets and poachers.

The protection of the lobster fishery is the most difficult, because party politicians persuade the fishermen that the fishery is inexhaustible, and unscrupulous speculators supply cans and outfits, and the islands, coves and rugged cliffs enable poachers to defy the officers.

Fish-ways are wanted in every dam, so that fish may have a free course. All the streams in the district abound in bait fish, which bring the more important article of commerce in their train.

Wine Harbour Brook has been cleared of long-standing obstructions.

The faithfulness of guardians requires a passing notice, and he believes the patrol work was carefully performed.

Fines have been imposed in a number of cases for violation. The materials used in violation of the Act were seized. Search-warrants issued, and the fish which were taken contrary to law seized.

*Overseer Cameron* reports a larger catch of salmon than for many years. The spring mackerel visited the district in large numbers. Fall mackerel do not appear in such large shoals, but they arrived earlier and continued along the coast for a greater length of time. Preparations were made on an extensive scale, and new twine put in the water in the fall months,—an unusual thing at this time—and owing to this and the number engaged in the venture, a fair quantity was taken.

Herrings show an increase of about 32 per cent, taken chiefly at the Hydra shoal, where they resort in September for spawning. He questions whether the fishermen are not killing the goose which lays the golden egg.

The statement of lobsters taken is not an approximate one but obtained from the packers, shows a slight falling off from last year of about 4 per cent.

#### HALIFAX COUNTY.

*Overseer Rowlings* says lobster factories opened a week earlier than last year, and for a short time fish were fairly plentiful, but from about 1st June they were scarce.

A considerable number of spring herring were taken, but very few in July; no good fat herring were taken on that part of the coast, and only a few barrels of mackerel. The fall mackerel did not appear to pass within reach.

The yield of the cod fishery pursued in boats is below the average; but the fishermen who own vessels and went to North Bay and the Banks did very well regarding quantity, but the price obtained was very low.

Whiting were very plentiful; these fish are only good when used quite fresh.

Salmon were more plentiful than during the past five years.

He believes, under the present system of guardians, we have much better attendance to the work, and no more cost; there has been less poaching than for many years past.

Regarding bounty claims, he suggests that the time be extended to 15th December, because many of the fishermen are not finished before the first week in December, especially if the fall be fine and open.

*Overseer Robert Gaston* has done good work in connection with the enforcement of the lobster regulations; with the aid of one man he has destroyed over two hundred lobster traps set in violation of law.

#### HANTS COUNTY.

*Overseer Colter* has never seen such a run of bass as in the Shubenacadie this fall; they would come up with the tide and fall back until the river rose, when they went up in one night to the lakes at the head of the river.

#### PICTOU COUNTY.

*Overseer Pritchard* reports a good run of salmon in the rivers in his division. His duties are of a protective character.

*Overseer Sutherland* has found it necessary to inflict fines for violation of the lobster regulations with regard to size. The close season is well observed.

*Overseer McQueen* says that although last year he fined some parties for poaching salmon, that this class of men are slow to learn. Salmon were plentiful in the rivers this fall, and he with the special guardians did all that could be done to preserve them.

*Overseer McPhie* says there is a large increase in the catch of salmon in nets over last year.

Spring herring were abundant, but there was a falling off in cod and hake, and a decline in the catch of lobsters.

Few smelts were taken owing to the absence of ice. A large number of eels were shipped to the United States.

Salmon were seen ascending the river in large numbers in the autumn.

I have the honour to be, sir, your obedient servant,

ROBERT HOCKIN,

*Inspector of Fisheries.*



### DISTRICT No. 3.

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ANNUAL REPORT OF THE FISHERIES OF DISTRICT No. 3 OF NOVA SCOTIA, COMPRISING THE COUNTIES OF KING'S, ANNAPOLIS, DIGDY, YARMOUTH, SHELBURNE, QUEEN'S AND LUNENBURG, FOR 1892, BY INSPECTOR J. R. KINNEY.

YARMOUTH, N.S., 31st December, 1892.

Hon. CHARLES H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—The statistics of this district exhibit, as compared with the returns for 1891, a falling off in value of upwards of \$300,000, which decrease is chargeable to the almost total failure in mackerel fishing, this item alone having fallen short upwards of 40,000 barrels.

I have before me the reports of the several overseers, but cannot from these glean an intelligent conjecture throwing any light upon the eccentricities of this fish. One year they come, and perhaps the next they do not visit our shores.

#### ALEWIVES

Have fallen off by about 5,000 barrels. This short catch was a serious drawback to the inshore cod fishery, as the alewife is much sought for as a bait for the cod family.

Within the three or four years past considerable sums of money have been expended in Shelburne County with a view of improving the alewife fishing, and good results should be evident at a not very distant date.

#### HERRINGS.

As predicted in October, there is an increased take of nearly 20,000 barrels. The prices obtained by the fishermen were a shade less than in the preceding year.

Shad, pollack, haddock, hake, salmon and cod exhibit no marked contrast with the product of 1891.

#### LOBSTERS

Are reported as yielding a total value of \$334,536.96, which is not a fair valuation, for the reason that the departmental value of live fish exported is made at \$40 per ton, when the actual value to the producer was really double, so that this one item in the fishery products should be credited with at least \$190,000. In connection with this branch of the fishing industry, I would urge that the most stringent regulations with heavy penalties be enacted. I found that the "berried" fish were being taken and sold to American snacks: hence I would suggest that a former proposition (to compel the owners of cars to register and mark the same) be adopted.

#### FISH-WAYS.

Happily this district is not to a great extent compelled to have these structures. Those which are supposed to be of some service are kept in good order. At Jordan River there are to be constructed two of the "Hockin" fish-ways, which may possibly solve the vexed problem of improving the value of the stream as a fish-producing river.

I am to report that the regulations compelling gill-nets to be taken up at stated hours of the day are held by fishermen to be very obnoxious measures. The fishery

officers generally disapprove of these regulations as being impracticable, with which view I am compelled to coincide.

I subjoin extracts from the reports of the several overseers, as has been the custom for several years:—

*Overseer S. J. Freeman*, Liverpool, says that the regulation regarding bait nets to be taken up every morning interferes greatly with the successful prosecution of cod fishing. The fishermen regard it as a great hardship and are hoping for its rescission.

*Overseer R. F. Reid*, Wolfville, reports a slight increase in the take of alewives on the Gaspereaux River, and that the fishery regulations have been fully maintained.

*Overseer James S. Miller*, Canning, reports a gradual improvement in the shad fishing, and believes that the stringing of herring nets across Scot's Bay breaks up the schools of shad.

*Overseer W. M. Bailey*, Round Hill, says that he attributes the gradual increase of salmon to the restocking of the waters from the hatchery at Bedford; he also states, as a result of an attempt to stock the waters of Annapolis County with whitefish, that a few of these fish have been caught. Overseer Bailey strongly urges the building of a branch hatchery in the county of Annapolis.

*Overseer James W. Cossaboom*, Rossway, advises that the lobster fishing regulations be so amended as to prohibit the taking of fish under  $10\frac{1}{2}$  inches in length.

*Overseer James A. Collins*, Westport, agrees with Overseer Cossaboom as to the minimum size at which the lobster should be taken, and further that the season should be extended an additional month.

*Overseer John A. Hatfield*, Tusket, says the lobster men have reaped a rich harvest this season, so that every available man and boy along the coast are preparing for a share in this lucrative business. He further adds that it is very difficult to get at the packers who are located upon the several islands.

*Overseer E. S. Goudey*, Barrington, reports a large take of salmon on the Clyde; this is where the fish-way problem has been solved by having the dam destroyed.

*Overseer W. J. McGill*, of Shelburne, reports that the lobster fishing regulations are satisfactory.

*Overseer W. M. Solomon*, West LaHave, reports that the Labrador fishing vessels have made fairly good voyages. He also believes that the change in obtaining claims for bounties is a good one, and that one good result is that fewer claims having been made, there will be a saving of the bounty funds.

*Overseer David Evans*, Chester, regrets the failure of the mackerel fishing; he thinks that there are indications of an early increase in the salmon fishing, and also reports a shortage in lobsters.

I am, sir, your obedient servant,

J. R. KINNEY,

*Inspector of Fisheries.*

## NOVA SCOTIA—

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in  
and the Total Number of Men employed, &c., in the

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.		Salmon, barrels.	Salmon, fresh, in ice, lbs.	Mackerel, barrels.
	Vessels.				Boats.		Nets.				
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.			
<i>Cape Breton County.</i>			\$			\$		\$			
From False Bay Beach to Long Beach					76	2530	96	4220	1148	3000	6
From Long Beach to Big and Little Glace Bay, and Bridgeport					6	260	12	560	138		1
From Lingan to South Bar and south side of Sydney River	1	10	280	3	41	806	69	2860	1040	2000	9
From Sydney to North-west Arm, Point Edward, Coxheath, Sydney Forks River, Grand Lake and other lakes					34	380	52	1620	432	780	
Gabarus	1	15	300	6	133	3210	233	7800	3900		780
Grand Mira					16	170	16	800	320	400	
Head of East Bay					10	120	20	300	150		
North side of East Bay					15	150	30	500	250		
Eskasoni					24	240	40	400	200		
Benacadie					16	192	30	300			
Grand Narrows to Bryden's Landing.					22	330	44	500	200		6
Big Pond					14	140	28	340	170	100	
South side of East Bay					11	120	22	220	110		
Louisburg	1	17	300	5	42	2100	105	6450	3225		380
Big Lorraine					41	2050	90	9000	4500	12	500
Kennington Cove					9	180	18	1350	675		30
Little Lorraine					16	800	38	2880	1440	2	600
Main-a-Dieu					43	2580	95	7740	3870	2	50
Scattarie					15	1400	42	1000	500		10
Bauline					14	420	30	1050	525		30
Mira Bay and River					60	1630	115	14500	6450	4	7200
Grand Narrows and Christmas Island					47	705	105	1410	525		800
Boisdale and George's River					10	150	22	350	175		150
Little Bras d'Or to Lloyd's Cove	6	110	2000	32	52	950	98	2780	850	1080	30
North Sydney to Ball's Creek					15	350	35	1750	650		10
Totals	9	152	2880	46	782	21963	1485	70680	31443	20	16610
											1717



## DISTRICT No. 1.

the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish,  
Province of Nova Scotia, for the Year 1892.

KINDS OF FISH.													FISH PRODUCTS.			VALUE.		
Herring, barrels.	Herring, smoked, lbs.	Alewives, barrels.	Cod, cwt.	Hake and Pollack, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish Guano, tons.	Fish used as bait, barrels.		\$	cts.
68		26	980		150	1600		500	1800	40		20965	490	40	245		11,240	60
20		20	350		35	2600		2000	1800	26			175		85		2,899	00
85		10	500		50	4400		400	2500	20		13583	250	15	125		6,747	62
206	1000	90	30		5	200		3000	5000	35			15		8		2,598	50
280			1860		60			150				138192	830		300		40,903	88
		50					2	130	800								378	00
50		6	25					100		10	40		12		6		608	30
87		20	70					130		13	11		30		17		1,010	00
43		18	126					400	100	70			63		30		1,656	70
60		12	129					40		5			64		32		1,032	10
200		29	587					220	700	3			293		122		4,143	20
40		10	75						200	10			37		16		731	30
100		15	120						100	4			19		7		1,120	60
250			1390	75	350							31344	1200		264		19,414	16
240		5	1000	60	325								950		250		11,817	00
75			180	10	45								160		30		2,144	00
150			640		160	800							550		80		5,247	00
175			1075	20	215	2000						31200	1000		172		12,395	50
25			1025		250							13680	975		35		8,097	70
126			350	20	140	800							325		70		3,427	00
160		223	860	10	240	600		300	1000	6	4		800		140		8,989	50
225		50	1650		75			425	1000	20			425		350		10,352	50
75		25	375		10			250	500				70		75		2,393	00
450			1750		225	1800		350	400	15		29250	375		375		16,516	00
175			350		75	600			1000	10			75		60		3,095	00
3365	1000	609	15497	195	2410	15400	2	8395	16900	287	55	278214	9183	55	2894	178,958	16	

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.							
	Vessels.				Boats.		Nets.		Weirs.		Salmon, barrels.	Salmon, fresh, in ice, lbs.	Salmon, in cans, lbs.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.				Value.
<i>Inverness County.</i>			£			£			£		£			
Port Hood .....					81	1620	203	10560	4800				500	480
Little Mabou .....					16	160	32	1200	400					
Seaside .....					16	240	40	3600	1100					
Little Judique .....					25	300	70	3800	1200					
Judique .....					30	360	60	3000	1000					
Long Point .....					26	350	52	2240	820				2500	
Creignish .....					19	200	25	1100	400				3800	
Low Point .....					20	200	34	2800	980					
Port Hastings .....	2	47	1200	10	31	400	45	1980	720					
Port Hawkesbury .....	3	158	4500	36	32	750	64	4800	1440					
Mabou Harbour .....					5	100	12	220	100				500	
Mabou Coal Mines .....					8	150	16	254	120				700	
Port Bain .....					13	200	30	660	300					
Whycocomagh .....					6	85	12	125	75				2800	
Trout Brook and East Lake .....														
West Bay .....					17	255	36	1100	450					
North Mountain .....					40	600	90	5000	2000					
Malagawatch .....					42	630	95	3000	1000					
Boom .....					30	450	60	2200	800					
Basin, River Dennis .....					16	250	38	660	230					
River Inhabitants .....					4	48	8	300	125					
S. S. Whycocomagh .....					7	100	20	700	290					
River Dennis .....					5	75	10	200	80					
Orangedale .....					22	330	50	1440	600					
Seal Cove .....					6	90	12	360	137					
Delaney Cove .....					7	280	21	860	240					
Doucett's Cove .....					6	220	18	700	193				380	
East Margaree .....					28	1400	94	3420	2900				694	
West Margaree .....	1	15	200	6	6	240	20	1300	1360				41832	
Margaree Forks .....													240	
Margaree River .....									48	400			426	
Margaree Island .....					22	580	46	1450	360					
Broad Cove Marsh .....					8	220	20	400	100					
Broad Cove Shore .....					10	210	16	560	145					
Coal Mines and Whale Cove .....					6	138	12	260	230					
Lake Outlet and Loch Bain .....														
Eastern Harbour .....	4	126	1600	29	88	10680	274	2725	1755				7900	200
Cheticamp Point .....					48	4000	163	1000	500		6			
Mill Brook .....					8	200	24	300	200					
Grand Etang .....					20	1000	66	500	500				4000	
Friar's Head .....					20	1050	68	600	550				6000	
Pleasant Bay .....					19	1800	54	300	250					1200
Totals. ....	10	346	7500	81	813	29961	2010	65674	28450	48	400	6	72272	1880

the Fisheries, Quantity and Value of Fishing Material, &c.—Nova Scotia—Con.

KINDS OF FISH.															FISH PRODUCTS.			VALUE.
Mackerel, barrels.	Herring, barrels.	Alewives, barrels.	Cod, cwt.	Hake and Pollack, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Bass, lbs.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	Fish used as manure, barrels.	
250	280	...	1600	800	600	400	...	...	600	250	1400	20	...	42557	1500	340	...	\$ cts.
20	60	...	100	70	180	40	...	...	100	20	400	...	...	...	50	20	...	24,629 98
80	100	...	180	300	500	60	...	...	...	50	200	...	...	27812	360	50	...	1,600 00
60	260	...	280	100	80	60	...	...	400	40	1000	30	...	...	160	40	...	8,062 68
25	240	20	160	...	...	20	...	...	1000	20	400	10	...	22604	40	30	...	4,494 00
25	200	10	180	...	...	40	...	...	800	...	...	...	...	7390	50	30	...	5,835 56
30	100	20	200	...	...	24	...	...	...	...	...	...	...	...	40	20	...	3,924 60
15	100	30	140	...	...	20	...	...	...	...	...	...	...	...	20	50	...	2,750 00
30	400	20	200	...	...	26	...	...	200	...	2000	35	...	5573	25	50	...	1,578 00
950	800	50	600	30	...	40	...	...	400	...	800	15	...	8877	1000	160	...	4,636 22
8	25	5	60	10	20	10	150	100	400	10	1500	10	7	...	...	10	...	22,167 78
10	25	...	40	10	20	8	50	...	500	6	2000	...	...	2928	40	20	...	1,020 00
12	50	...	60	...	...	10	50	...	...	10	3500	...	...	7344	25	60	...	1,269 42
...	...	...	65	...	...	...	...	...	1200	...	2400	20	60	...	30	12	...	2,048 16
...	...	...	...	...	...	...	...	...	15000	...	...	...	...	...	...	...	...	1,490 50
...	1000	...	120	...	...	...	...	...	250	...	1000	40	...	...	...	50	...	1,500 00
30	1000	...	1500	...	...	...	...	...	150	...	3000	60	...	...	...	2000	...	5,540 00
...	800	...	200	...	...	...	...	...	200	...	...	50	300	...	...	...	...	15,435 00
...	400	...	300	...	...	...	...	...	1000	...	...	...	30	...	...	...	...	5,920 00
...	160	...	345	...	...	...	...	...	3000	...	3000	80	100	...	...	...	...	3,340 00
...	...	...	...	...	...	...	...	...	3000	...	2000	50	...	...	...	...	...	3,822 50
...	150	...	...	...	...	...	...	...	3000	...	2000	50	...	...	...	...	...	900 00
...	50	...	...	...	...	...	...	...	4000	...	8000	...	150	...	...	...	...	1,575 00
...	200	...	200	...	...	...	...	...	...	...	...	...	300	...	...	...	...	1,475 00
...	20	...	...	...	...	...	...	...	...	...	3000	75	100	...	...	...	...	2,700 00
20	30	...	392	...	...	30	...	...	...	14	...	...	...	...	146	24	...	1,290 00
31	26	...	314	...	...	29	...	...	...	12	...	...	...	...	120	18	...	2,434 40
115	200	50	2100	...	...	194	400	...	400	40	...	10	...	...	680	75	...	2,264 50
19	80	434	1380	117	200	160	1400	...	240	20	...	4	...	7776	1200	50	...	13,727 30
...	14	186	...	...	...	160	1400	...	300	...	...	...	6	...	...	...	...	20,094 04
...	628	...	...	...	...	...	...	...	1040	...	...	...	...	...	...	...	...	978 00
300	500	...	146	20	...	48	430	...	...	50	...	...	...	...	160	120	...	3,075 20
40	80	...	100	...	...	23	...	...	...	12	...	...	...	7152	40	60	...	7,822 00
18	74	12	80	...	...	24	...	...	...	10	...	...	...	...	100	20	...	2,641 78
9	16	...	60	...	...	6	...	...	...	5	...	...	...	18720	12	146	...	1,193 00
...	150	...	...	...	...	...	...	...	1100	...	...	18	...	...	...	...	...	3,353 60
206	...	...	7727	...	...	205	...	...	420	...	...	...	...	37440	3420	190	...	965 00
25	...	...	6400	...	...	100	...	...	500	...	...	...	...	...	3000	200	...	48,557 60
16	...	...	350	...	...	100	...	...	100	...	...	...	...	19200	100	5	...	33,096 00
110	...	...	4750	...	...	100	...	...	180	...	...	...	...	...	500	110	...	5,284 50
120	...	...	1200	...	...	150	...	...	200	...	...	...	...	2880	600	200	...	25,150 00
250	...	...	4750	...	...	20	...	...	150	...	...	...	...	20352	80	100	...	10,548 20
2824	7390	1673	36279	1457	1600	1947	2480	100	38280	2119	37600	583	1047	238605	13498	4210	50	338,945 89



RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.		Salmon, fresh, in ice, lbs.	
	Vessels.				Boats.			Nets.		
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.		Value.
<i>Richmond County.</i>			\$			\$		\$		
Arichat .....	3	88	880	18	53	424	62	6960	1740	100
Cape Auguet.....					71	568	81	18040	4510	
Petit de Grat .....	3	83	830	15	120	960	160	12000	3000	
Rocky Bay .....					32	256	54	7780	1945	
Poulimond and D'Escousse .....	5	168	1680	47	11	88	14	1960	490	
Lower D'Escousse.....	7	319	3190	80	23	184	38	3960	990	
West Arichat .....	1	13	130	2	67	496	80	9500	2375	
Grandique.....					22	176	27	3320	830	
St. Peters.....	2	50	600	14	16	250	20	2260	650	
River Bourgeoise.....	26	659	10000	190	18	144	21	3400	1200	
Grandique Ferry and Port St. Lewis .....					33	660	66	6600	1650	
River Inhabitants and Basin .....	4	131	1300	15	104	1112	138	24000	5920	
Port Malcolm and Strait of Canso.....	9	400	4500	60	240	2400	449	7000	2800	
West Bay .....					80	800	160	4800	1920	
St. Peter's East .....					10	120	22	2000	500	
Grand Grave.....					19	228	40	5760	1440	
Rockdale .....					38	460	78	10880	2720	
Upper L'Ardoise.....	1	12	200	3	61	1325	170	13800	3105	
Lower L'Ardoise.....	1	11	150	4	40	665	85	9720	2430	1963
Point Micheau.....					8	72	16	960	192	
Gravel River.....					22	396	47	6600	1650	2000
L'Archevêque .....					14	352	30	2680	605	
Framboise.....					21	420	46	2940	665	
Fourchu .....					20	550	60	2440	610	
Totals.....	62	1934	23460	448	1143	13106	1964	169660	43937	4063

the Fisheries, Quantity and Value of Fishing Material, &amp;c.—Nova Scotia—Con.

KINDS OF FISH.											FISH PRODUCTS		VALUE.
Mackerel, barrels.	Herring, barrels.	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, barrels.	Hake and Pollack, cwt.	Haddock, cwt.	Halibut, lbs.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, brls.	
													\$ cts.
425	772	6	1689			223		10607		15936	80		20,645 39
134	1175		2050		11	970				24000	150		23,236 50
93	590	1	3546		275	506				70740	300		32,538 10
186	300	3	822			127					30		8,123 00
18	170	3	84			2					900		1,775 50
210	730	3	2518			33	3700			63200	1420		27,471 00
202	734	78	685			226				45120	50		16,692 30
65	260	1	134			30			12		20		2,920 50
125	130		500						10		175		4,755 00
50	250	8	4000			100				13920	2500		23,159 80
300	600	20	600			50		14000	50		250		11,165 00
752	2000	700	2980			2580		8000	20		750	8	46,030 00
1050	2200	520	2500	20		500				9000	550	510	42,385 00
	400	10	400						10		150		3,805 00
160	100											6	2,699 00
270	360	12										12	5,472 00
460	478	38	94			52				40656	45	26	15,115 84
760	528	120	714			294				28176	350	26	21,921 64
465	300	70	200			230					150	30	10,377 60
60	70	6	40			6				21984	15	10	4,481 76
460	208	8	100			8			6		30	6	8,371 00
142	116	6	150			8			10	33600	40	20	8,090 00
220	88	16	308				2500		7	14400	80		7,302 00
109	22	8	520			12	1000			57600	160	100	12,421 00
6716	12581	1637	24634	20	286	5957	7200	32607	125	438332	8195	754	360,953 93

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.		Salmon, barrels.	Mackerel, barrels.	Herring, barrels.	Herring, smoked, lbs.	
	Vessels.				Boats.		Nets.						
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.					Value.
<i>Victoria County.</i>			\$			\$			\$				
Englishtown.....					27	370	54	3,889	1,759	16	2	223	
Eel Cove.....					12	168	24	600	240			14	
Black Head.....					8	126	8	775	310	10	1	42	
Bird Island.....					4	56	2	300	120		1	2	
Barachois.....					18	396	28	1,810	748	6	2	62	
Black Rock, north shore.....					10	240	10	1,000	400		20	40	
Big Harbour.....					8	80	8	200	80			24	
Breeding Cove.....					12	144	16	1,100	440		36	48	
Cape Dauphin.....					22	308	44	1,100	440		2	40	
French River.....					20	280	40	2,500	1,000		40	80	
Goose Cove.....					6	84	12	600	240			24	
Graphin.....					8	160	16	800	320		4	4	
Indian Brook.....					15	210	30	1,125	449		150	180	
Little River.....					20	280	22	2,000	800		30	110	
Munroe's Point.....					14	196	28	1,400	260	3		70	
North River.....					30	420	40	2,250	900	2		120	
New Campbellton.....					26	364	52	1,300	520		2	40	
N. side Big Bras d'Or.....					22	308	44	1,100	440		2	20	
S. side Big Bras d'Or.....					32	448	64	1,300	520	7	4	80	
South Gut.....					3	42	6	200	80			12	
South Bay, Ingonish.....					114	2,850	228	7,950	3,180	56	212	112	
Smoky.....					4	56	4	300	120		20	22	
Rocky side, St. Ann's.....					8	96	14	600	240		1	16	
Path End.....					6	240	6	450	180	14	30	40	
Wreck Cove.....					20	280	20	2,000	800	2	60	100	
North Gut.....					8	112	16	600	240	1		32	
Meat Cove.....					12	240	24	690	350		25	24	
Wreck Cove.....					13	260	28	854	425	7	36	40	
Bay St. Lawrence Pond.....					38	760	84	1,760	875		65	45	
North Harbour.....					31	620	68	1,834	962	15	190	48	
White Point.....					49	980	100	3,500	1,840	19	84	75	
New Haven.....					34	1,350	70	2,340	1,200		20	25	
Neil's Harbour.....					40	16,000	80	2,830	1,560	4	26	32	
Green Cove.....					28	560	54	1,400	826	6	18	35	
North Bay, Ingonish.....					155	2,325	220	3,450	1,820	6	75	20	
Ingonish Island.....					8	160	16	368	145		8	9	
Baddeck.....					12	124	15	497	172	9		52	
Washabuck.....					11	205	18	440	110	1		54	
Grand Narrows.....	2	67	700	6	65	1,135	158	2,615	784	4	23	559	
S. side Little Narrows.....					26	230	30	780	195		4	112	
N. side Little Narrows.....					14	112	14	280	80	1		8	
Kempt Head, Boularderie.....					19	228	32	570	252			91	
Totals ..	2	67	700	6	1,032	33,603	1827	61,457	26,422	189	1,193	2,786	



the Fisheries, Quantity and Value of Fishing Material, &amp;c.—Nova Scotia—Con.

KINDS OF FISH.											FISH PRODUCTS.		VALUE.
Alewives, barrels.	Cod, cwt.	Hake and Pollack, cwt.	Haddock, cwt.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	Fish used as manure, barrels.	
	100	70			36				2,400	50	12		\$ cts.
	3												2,465 50
	87		13		10					43	6		76 50
	20				2					10	2		866 20
	19		6		10					9	18		128 00
	100		8		30					50	20		580 10
													1,108 00
													108 00
	80		30		46					40	24		1,421 00
	40				40					20	44		622 00
	200		60		40					100	40		2,290 00
	5				3						2		145 50
	10				8						7		161 50
	84		50		40					42	30		3,684 80
	140		80		70				6,240	70	60		3,096 60
	7				14						7		461 00
	30				30					15	10		848 00
	250		50		40					125	52		1,796 00
	150		50		30					75	44		1,184 00
	80		20		30					40	64		1,190 00
	1				25						1		160 00
	3,180				1,060				28,848	1,590	684		28,618 72
	30		10		10					15	8		607 00
	2				4						2		114 00
	50		20		18					25	12		1,219 00
	140		70		40					70	40		2,445 50
	4				16					2	2		245 80
	275									175	30		1,810 50
	300									200	32		2,274 00
	850									500	58		5,224 50
	1,000									700	60		7,986 00
	1,900									1,360	85		11,039 00
	2,500								7,200	1,700	108		13,492 50
	2,720								7,680	1,800	125		14,794 70
	950								3,888	475	45		5,582 32
	4,200								4,848	2,000	190		21,899 72
	175									80	20		1,002 00
	65			1,200	2	600	12	90		10	2		1,225 50
	16			1,000		450	9	114		24	6		1,583 60
	99					850	13	1,170		334	174		19,731 60
	138							107			22		2,479 00
	82						1,300	28		22	2		1,046 80
	12						1,000	5			18		1,370 50
347	22,985	70	497	3,800	1,654	4,200	67	1,529	61,104	11,771	2,168		168,184 46

## RECAPITULATION

Of the Yield and Value of the Fisheries of the Island of Cape Breton for  
the Year 1892.

Kinds of Fish.		Quantities.	Rate.		Value.
			\$	cts.	\$ cts.
Salmon, pickled .....	Brls.	215	16	00	3,440 00
do fresh, in ice .....	Lbs.	92,945	0	20	18,589 00
do preserved .....	Cans.	1,880	0	15	282 00
Mackerel, pickled .....	Brls.	12,450	14	00	174,300 00
Herring, pickled .....	do	26,122	4	50	117,549 00
do smoked .....	Lbs.	1,000	0	02	20 00
Alewives .....	Brls.	4,266	4	50	19,197 00
Cod, dried .....	Cwt.	99,395	4	50	447,277 50
Cod tongues and sounds .....	Brls.	20	10	00	200 00
Hake and pollack .....	Cwt.	2,008	3	00	6,024 00
Hake sounds .....	Lbs.	1,600	0	50	800 00
Haddock .....	Cwt.	10,811	3	50	37,838 50
Halibut .....	Lbs.	25,080	0	10	2,508 00
Shad .....	Brls.	2	10	00	20 00
Bass .....	Lbs.	100	0	06	6 00
Trout .....	do	50,475	0	10	5,047 50
Squid .....	Brls.	3,773	4	00	15,092 00
Smelts .....	Lbs.	91,307	0	05	4,565 35
Eels .....	Brls.	1,062	10	00	10,620 00
Oysters .....	do	2,631	3	00	7,893 00
Lobsters .....	Cans.	1,016,255	0	14	142,275 70
Fish oil .....	Galls.	42,647	0	40	17,058 80
Fish guano .....	Tons.	55	25	00	1,375 00
Fish used as bait .....	Brls.	10,026	1	50	15,039 00
Fish used as manure .....	do	50	0	50	25 00
Total .....					1,047,042 35

COMPARATIVE Statement of the Value of the Fisheries for the four Counties of the  
Island of Cape Breton, for the Years 1891 and 1892.

Counties.	1891.	1892.	Decrease.	Increase.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Cape Breton .....	196,222 66	178,958 16	17,264 50	
Inverness .....	343,701 48	338,945 80	4,755 68	
Richmond .....	298,763 80	360,953 93		62,190 13
Victoria .....	248,033 96	168,184 46	79,849 50	
Total .....	1,086,721 90	1,047,042 35	101,869 68	62,190 13
Decrease .....			39,679 55	

TABLE showing the Number and Value of Vessels and Boats, Nets and Seines, &c., engaged in the Fisheries of the Island of Cape Breton, and the Approximate Estimate of the Value of other material not included in Returns for 1892.

Materials.	\$ cts.	\$ cts.
83 vessels, 2,499 tons . . . . .	34,540 00	263,425 00
3,770 boats . . . . .	98,633 00	
367,471 fathoms of nets . . . . .	130,252 00	
52 canning establishments . . . . .	50,100 00	231,883 00
85,870 lobster traps . . . . .	77,283 00	
Seines . . . . .	2,000 00	
Hand-lines, trawls, &c . . . . .	33,000 00	
Steamers, smacks, punts, canoes, &c . . . . .	12,500 00	
Fishing piers, houses and other sundries . . . . .	53,500 00	
Fish trap nets and weirs . . . . .	3,500 00	
		231,883 00
Total . . . . .		495,308 00



NOVA SCOTIA—

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the the Total Number of Men employed, &c., in the

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.		Salmon, fresh, in ice, lbs.	Mackerel, barrels.	Herring, barrels.	Herring, smoked, lbs.
	Vessels.				Boats.		Nets.					
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.				
<i>Antigonish.</i>			\$		\$			\$				
Harbour au Bouche and Little Tracadie.....	1 12	200	3	40	760	73	15000	1600	4000	200	1200	.....
Big Tracadie and East Bayfield ..				30	420	43	1200	970	600	25	220	.....
Bayfield, Antigonish Harbour and Morristown.....				31	450	49	9000	2100	22520	210	170	.....
Lakeville, Ballentine's Cove and Cape George.....				38	680	46	11000	1800	8000	80	204	.....
Georgeville and Malignant Cove.....				29	450	46	15000	1600	4000	20	60	.....
Doctor's Brook, Arisaig, Moidart and Knoydart .....				22	380	48	11000	1400	5000	42	120	.....
Totals.....	1 12	200	3	190	3140	314	62200	9470	44120	577	1974	.....
Value.....\$									8824	8078	8883	...
<i>Colchester.</i>												
Sterling.....				13	190	16	510	217			59	.....
Stewiacke.....				22	110	30	276	170	1000			.....
Five Islands ..				6	155	18	135	70				.....
Economy.....				9	280	52	2875	535	2650		30	16800
Little Bass River and Highland Village.....				14	480	43	4775	690	4300			.....
Great Village and Great Village Point.....				4	120	8	1400	185	2050			.....
Masstown to Princeport.....				13	370	24	3775	610	4750			.....
Totals.. ..				81	1705	191	13746	2477	14750		89	16800
Value.....\$									2950		400	672

## DISTRICT No. 2.

Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, and Province of **Nova Scotia**, for the Year 1892.

KINDS OF FISH.													FISH PRODUCTS.			VALUE.
Alewives, barrels.	Cod, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Bass, lbs.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Hake Sounds, lbs.	Fish Oil, gallons.	Fish used as bait, barrels.	Fish used as manure, barrels.	
190	280	220	50	.....	.....	.....	720	8000	24	.....	60000	200	250	300	.....	\$ cts.
28	52	160	10	.....	.....	200	1400	2500	42	110	15000	90	70	280	.....	21,712 00
20	18	50	.....	.....	.....	2000	1400	12000	60	15	40000	120	20	320	.....	5,955 00
38	470	1250	200	.....	.....	700	.....	2500	.....	.....	47000	450	520	288	.....	16,183 00
10	138	508	120	.....	.....	.....	.....	.....	.....	.....	25000	2600	310	170	.....	17,986 00
8	150	860	200	.....	.....	600	1600	3000	.....	.....	27050	3500	410	270	.....	9,139 00
294	1108	3048	580	.....	.....	3500	5120	28000	126	125	214050	6960	1580	1628	.....	12,571 00
1323	4986	9144	2030	.....	.....	201	512	1400	1260	375	29967	3480	632	2442	.....	83,546 00
60	.....	.....	.....	.....	.....	.....	.....	8568	.....	200	16656	.....	.....	.....	.....	3,625 00
.....	159	.....	28	2350	32	900	900	.....	.....	.....	.....	.....	.....	.....	.....	934 00
.....	25	.....	.....	.....	74	.....	150	.....	.....	.....	.....	.....	114	.....	14	1,857 00
.....	.....	.....	.....	.....	485	.....	1500	.....	.....	.....	.....	.....	.....	.....	.....	6,449 00
.....	.....	.....	.....	.....	366	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,520 00
.....	.....	.....	.....	.....	68	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,090 00
.....	.....	.....	.....	.....	141	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,360 00
60	184	.....	28	2350	1166	900	2550	8568	.....	200	16656	.....	114	.....	14	.....
270	828	..	98	235	11660	54	255	428	.....	600	2332	.....	46	.....	7	20,835 00





the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia—Con.**

KINDS OF FISH.										FISH PRODUCTS.		VALUE.
Cod, cwt.	Pollack, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, brls.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish used as bait, brls.	Fish used as manure, barrels.	
10						26,950		27	198,286	509	190	\$ cts.
				5	1,000		5	600	193,776	1,105	190	30,237 00
				9	1,420	1,400	14					33,655 00
						1,800						3,143 00
				221								863 00
												2,370 00
68	27	32	405									1,639 00
47	22	26										517 00
70	30	75										971 00
127	72	62	4,150									1,829 00
322	151	195	4,555	235	2,420	30,150	19	627	392,062	1,614	380	
1,449	453	683	456	2,350	242	1,507	190	1,881	54,888	2,521	190	75,224 00

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.								
	Vessels.				Boats.		Nets.		Weirs.		Salmon, barrels.	Salmon, fresh, in ice, lbs.	Salmon, smoked, lbs.	Salmon, in cans, lbs.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Fathoms.	Value.	No.	Value.					
<i>Guysboro' County.</i>			\$		\$			\$		\$					
Ecum Secum .....					32	650	43	550	215				1630		
Marie Joseph .....					39	980	49	880	220						
Liscombe Bay and Spanish Bay .....					88	1590	94	1652	583				1420		
Gegoggin Harbour and River .....					23	233	24	520	136				1100		300
St. Mary's Bay and River .....	2	58	1300	10	33	418	26	2140	481				8295	375	
Wine Harbour .....					17	315	23	1830	505			87	2600		
Port Hilford .....					36	645	36	2455	600						
Holland's Harbour .....					15	1520	18	1820	550						
Beckerton .....					58	3760	83	5413	2105						
Fisherman's Harbour .....					57	3936	77	6000	2820						
Country Harbour and Isaac's Harbour .....					54	755	58	3680	890				2125		
Isaac's Harbour to New Har- bour .....					156	4795	188	17491	3834	3	30	5			
New Harbour to Whitehead .....	4	77	1650	17	254	9000	474	58621	11833	1	200	7	1400		
Whitehead to Canso, including Tittle .....	2	54	1600	11	200	9000	250	27000	6090	30	7500		8000		
Canso, Tittle to Salmon River..					264	2250	275	34400	7915	42	4960		7000		
Salmon River to County Line, including Cook's Cove, Guys- boro', North Shore and Strait of Canso .....	8	300	6290	41	438	8760	500	73520	14700	5	100		15000		
Totals .....	16	489	10750	79	1764	49707	2218	234972	53387	81	12790	99	48570	375	600
Value .....	\$											1584	9714	75	90

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia—Con.**

KINDS OF FISH.													FISH PRODUCTS.			VALUE.
Mackerel, barrels.	Herring, barrels.	Alewives, barrels.	Cod, cwt.	Pollack, cwt.	Haddock, cwt.	Halibut, lbs.	Bass, lbs.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	Fish used as manure, barrels.	
																\$ cts.
.....	77	8	166	5	30	1520	...	1800	.....	.....	40	42200	90	370	40	8,827 00
3	39	...	631	...	55	1600	...	...	.....	.....	...	59800	240	380	60	12,578 00
.....	222	117	580	50	139	720	...	3450	.....	9600	...	49000	292	980	50	14,425 00
.....	139	...	151	...	30	75	...	700	.....	3400	...	...	82	146	...	2,176 00
1	439	...	324	...	20	200	...	2200	.....	4000	20	33700	67	220	35	10,983 00
.....	481	4	70	5	35	...	...	525	.....	...	...	...	49	255	...	4,999 00
108	845	42	92	...	...	...	...	1180	44	...	...	33600	45	270	35	11,582 00
52	500	...	69	...	...	...	...	11800	...	8700	...	...	34	62	...	5,011 00
82	2570	...	821	...	...	...	...	1025	...	...	...	44900	417	488	45	23,762 00
388	2830	...	1243	...	...	...	...	5210	20	...	...	...	643	525	...	25,307 00
19	528	...	73	...	...	...	...	5400	.....	.....	35	54250	9	475	50	12,666 00
190	2700	30	1334	120	248	3500	...	1800	25	4000	50	103488	684	260	...	38,740 00
2020	5700	650	5500	80	1400	3000	...	2700	600	300	...	275406	4150	1000	30	131,853 00
900	2000	100	3600	40	2500	2000	...	...	1000	.....	60	239560	2378	800	55	89,237 00
2000	1800	50	2350	10	900	...	500	1900	1500	3000	...	59904	1390	600	40	67,712 00
4062	9300	520	2800	....	850	.....	...	2100	1550	8000	30	...	1180	530	15	128,018 00
9825	30170	1571	19814	310	6207	12615	500	41790	4739	41000	235	995808	11750	7361	455	
137550	135765	7070	89165	930	21724	1262	30	4179	18956	2050	2350	139413	4700	11041	228	587,876 00



## RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.							
	Vessels.			Boats.			Nets.		Salmon, barrels.	Salmon, fresh in ice, lbs.	Salmon, smoked, lbs.	Salmon, in cans, lbs.	Mackerel, barrels.	Mackerel, in cans.
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.					
<i>Halifax County.</i>			\$			\$			\$					
North Shore.....	2	60	800	10	204	3820	261	7950	1195	2000			524	
East St. Margaret's.....	2	30	600	6	108	1430	106	11000	2600	2500			240	
Indian Harbour.....	3	59	1000	15	196	3900	172	26460	4772	1800			623	
Peggy's Cove.....	1	16	200	5	41	605	41	5200	1000	500			104	
Dover.....	5	84	1850	25	170	2000	122	13000	2600	850			425	
Prospect.....	2	34	1000	9	220	3250	230	13600	3500	1000			400	2000
Terrance Bay.....	6	90	1800	18	170	1700	280	7680	1540				220	
Pennant.....	4	48	1800	14	55	3000	120	4000	800				75	
Sambro.....	3	57	1800	17	84	1610	156	10850	2170				96	
Ketch Harbour.....	3	60	1500	18	80	1200	180	8500	2050	240			170	
Portuguese Cove.....					90	1375	260	13750	2800	4000			27	
Herring Cove.....	11	330	9000	80	75	750	160	7500	1500	1			1	
Ferguson's Cove.....	1	30	500	6	40	550	80	2125	350					
Bedford.....					6	110	9	700	250	600			1	
Halifax.....	3	80	2100	20	20	500	45	360	80				10	
Eastern Passage to Three Fathom Harbour.....					125	2012	105	34320	2332	2880			121	
Seaforth to East Chezzet- cook.....	15	560	15500	153	198	2284	68	29060	1954	116			40	
Petpeswick to Clam Har- bour.....	13	362	11000	99	295	5418	239	47800	3665	2510	690	110	153	
Ship Harbour to Pleasant Harbour.....	3	80	1200	20	71	1361	78	14100	940	120			35	
Pleasant Harbour to Tay- lor's Head.....	5	162	4200	39	161	3900	209	58080	4130	1650			452	
Taylor's Head to Beaver Point.....	3	67	1550	16	43	1092	37	11580	854	750			73	
Beaver Point to Ecum Secum.....					87	2512	97	38230	865	200	160		53	
Totals.....	85	2209	57400	570	2539	44379	3055	365845	41947	6	21716	850	110	3843 2000
Value..... \$									96	4343	170	16	53802	240

in the Fisheries, Quantity and Value of Material, &amp;c.—Nova Scotia—Con.

KINDS OF FISH.														FISH PRODUCTS.		VALUE.	
Herring, barrels.	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, barrels.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Hake Sounds, lbs.	Fresh Lobsters, tons.	Fish Oil, gallons.		
70	20	85		130	50	15		800					27		123	6	\$ cts.
180	15	140			100	55	400	300					58		140	30	9,269 00
880	30	1135		93	510	340	2000						250		856	215	6,060 00
220	5	250		10	75	25							38		160	10	22,273 00
420	15	400		100	550	200							275		650	50	4,133 00
620	40	2075		160	230	95	300					12000	130		1260	253	12,999 00
280	20	5240		60	300	100	5000					10000	180		2500	100	22,515 00
100		1000		30	300	150	2000	300				24000	180		650	80	32,580 00
130		1220		90	140	50						100800	69		600	10	11,575 00
230	30	400		700	160	100	1000						90		1080	30	22,685 00
130		1020				50									570	10	8,950 00
110		2500		60	200	300	100000		10				90		1300	100	6,827 00
40		165		5	20	10	500		2						95	5	24,360 00
		12									2						1,136 00
20		340			50	20		1000						140	200	10	208 00
																	5,675 00
468	33	1166	30	239	3	300	6000	900	3	2000	11				446	96	13,083 00
447	131	6174	160	61		329	2370	970	2	3700	14				2016	440	36,036 00
1694	52	5651	201	662	355	316	13818	3200		11000	68	100584	400		1889	351	60,748 00
990	104	916		65	189	105	594				7	29480	234		268	56	15,254 00
1430	17	1869		95	1106	179	5598	1250			15	134468	620		686	101	46,207 00
420	7	425		11	216	69	979	300				104200	265		141	20	20,863 00
720		610		18	14	44	1665	800				303404			256	32	49,923 00
9599	519	32793	391	2589	4568	2852	142224	9820	17	16700	117	818936	2906	140	15826	2010	
43196	2336	147569	3910	7767	13704	9982	14223	982	68	835	1170	114651	1453	3500	6330	3015	433,359 00





the Fisheries, Quantity and Value of Fishing Material, &amp;c.—Nova Scotia—Con.

KINDS OF FISH.														FISH PRODUCTS.		VALUE.	
Mackerel, barrels.	Herring, barrels.	Alewives, barrels.	Cod, cwt.	Pollack, cwt.	Hake and Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Bass, lbs.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish used as bait, barrels.		Fish used as manure, barrels.
.....	.....	163	200	.....	.....	200	.....	207	.....	.....	.....	.....	.....	.....	.....	.....	% cts.
.....	.....	115	.....	.....	.....	.....	.....	38	3970	.....	.....	.....	.....	.....	.....	.....	6,374 00
.....	47	70	123	4	.....	2	150	165	4100	3625	.....	.....	.....	.....	.....	.....	689 00
.....	47	348	323	4	.....	202	150	410	8070	3625	.....	.....	.....	.....	.....	.....	898 00
...	212	1566	1454	12	.....	707	15	4100	484	363	.....	.....	.....	.....	.....	.....	3,599 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,560 00
15	150	20	30	.....	.....	.....	.....	.....	.....	350	20000	60	10	429168	350	420	63,653 00
.....	256	.....	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	184320	200	180	27,392 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	300	500	10000	150	175	.....	.....	.....	2,593 00
9	315	.....	62	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23404	50	220	8,139 00
.....	110	.....	.....	.....	300	.....	.....	.....	.....	.....	.....	10	8	80000	100	75	14,947 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,560 00
.....	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	166749	50	160	25,765 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	760 00
24	881	20	102	.....	300	.....	.....	.....	300	850	30000	220	193	883641	750	1055	.....
336	3965	90	459	.....	900	.....	.....	.....	18	85	1500	2200	579	123710	1125	528	144,809 00

## RECAPITULATION

Of the Yield and Value of the Fisheries in District No. 2, **Nova Scotia**, with a Comparative Statement of the Increase or Decrease for the Years 1891 and 1892.

Kind of Products.	Quantities in 1892.	Rate.	Value	Total.	In-	De-
			in 1892.		crease.	crease.
		\$ cts.	\$	\$	Qty.	Qty.
Salmon, pickled . . . . . Brls.	105	16 00	1,680			380
do fresh, on ice . . . . . Lbs.	195,141	0 20	39,028		44,968	
do smoked . . . . . "	1,225	0 20	245			3,330
do in cans . . . . . Cans.	710	0 15	106	41,059		330
Mackerel, pickled . . . . . Brls.	14,322	14 00	200,508			12,802
do in cans . . . . . Cans.	2,000	0 12	240	200,748		4,000
Herring, pickled . . . . . Brls.	43,435	4 50	195,459		12,483	
do smoked . . . . . Lbs.	16,800	0 04	672	196,131	2,400	
Alewives . . . . . Brls.	3,567	4 50		16,053		1,066
Cod . . . . . Cwt.	54,646	4 50		245,910		16,999
Cod tongues and sounds . . . . . Brls.	391	10 00		3,910		
Pollack . . . . . Cwt.	3,054	3 00		9,162	955	
Hake, dried . . . . . "	7,916	3 00		23,748		612
do sounds . . . . . Lbs.	9,866	0 50		4,933		3,444
Haddock . . . . . Cwt.	10,064	3 50		35,224		7,372
Halibut . . . . . Lbs.	161,894	0 10		16,191	46,977	
Shad . . . . . Brls.	1,811	10 00		18,110	633	
Bass . . . . . Lbs.	13,270	0 06		796	8,370	
Trout . . . . . "	66,175	0 10		6,618		15,090
Squid . . . . . Brls.	4,756	4 00		19,024	1,306	
Smelts . . . . . Lbs.	154,418	0 05		7,720		73,578
Eels . . . . . Brls.	717	10 00		7,170	378	
Oysters . . . . . "	1,145	3 00		3,435	435	
Lobsters, cans . . . . . Lbs.	3,321,153	0 14		464,961		490,618
do sold fresh . . . . . Tons.	140	25 00		3,500		16½
Fish oil . . . . . Galls.	29,270	0 40		11,708		10,924
Fish used as bait . . . . . Brls.	13,363	1 50		20,144	2,853	
Fish products used as manure . . . . . "	1,904	0 50		953		536
				1,357,208		

COMPARATIVE Statement of Value of Fisheries in each County of District No. 2, **Nova Scotia**, for the Years 1891 and 1892.

County.	Value in 1891.	Value in 1892.	Increase.	Decrease.
	\$	\$	\$	\$
Antigonish . . . . .	73,461	83,546	10,085	
Colchester . . . . .	14,190	20,835	6,645	
Cumberland . . . . .	77,700	75,224		2,476
Guysborough . . . . .	559,737	587,876	28,139	
Halifax . . . . .	751,194	433,358		317,836
Hants . . . . .	4,017	11,560	7,543	
Pictou . . . . .	160,613	144,809		15,804
			52,412	336,116
				52,412
			Decrease.	283,704

TABLE showing the Value of Vessels, Boats, Nets, &c., engaged in the Fisheries of District No. 2, **Nova Scotia**, with an Approximate Value of other Fishing Material for the Year 1892.

	Value.
	\$
102 vessels, 2,710 tons .....	68,350
5,092 boats.....	108,933
697,801 fathoms of nets .....	115,407
87 weirs.....	13,010
35,660 fathoms of seines.....	14,264
	319,964
95 canning establishments.....	\$ 115,540
133,440 lobster traps.....	53,376
	168,916
Wharves and piers.....	22,100
Ice-houses, for preserving bait and fish.....	12,140
Trawls, hand-lines and implements .....	21,500
Total .....	544,620



NOVA SCOTIA—

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in  
and the Total Number of Men employed, &c., in the

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.							
	Vessels.			Boats.				Nets.		Weirs.		Salmon, fresh, in ice, lbs.	Mackerel, barrels.	Herring, barrels.	Herring, smoked, lbs.
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Number.	Value.				
<i>Annapolis County.</i>			\$			\$			\$		\$				
South Side of Basin .....	2	26	780	10	22	440	44	400	200	6	1200	.....	100	100	50000
Margaretsville. ....	4	92	2760	24	15	940	29	2200	1100	.....	.....	150	20	800	.....
Port George. ....	1	16	480	4	16	320	32	1650	805	1	200	1900	55	900	.....
Port Lorne and Hampton....	.....	.....	.....	.....	28	560	42	4100	2050	.....	.....	.....	.....	1500	.....
Phinney's Cove.....	.....	.....	.....	.....	14	280	20	1600	800	.....	.....	.....	.....	400	.....
Parker's and Young's Cove..	.....	.....	.....	.....	34	680	44	2500	1250	.....	.....	.....	12	1510	.....
Litchfield and Hillsboro'....	.....	.....	.....	.....	19	380	46	1144	570	.....	.....	.....	10	410	.....
Thorne's Cove to Gut.....	6	293	7850	70	46	920	69	2960	1450	.....	.....	.....	.....	100	.....
Thorne's Cove to Ferry .....	.....	.....	.....	.....	12	240	20	.....	.....	3	450	.....	.....	50	.....
East to County Line.....	.....	.....	.....	.....	.....	.....	.....	250	250	3	300	3400	.....	.....	.....
Lequille River, Round Hill and Inland Lakes .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5500	.....	.....	.....
Totals .....	13	427	11870	108	206	4760	346	16804	8475	13	2150	10950	197	5770	50000



RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.							
	Vessels.				Boats.		Nets.		Weirs and Traps.		Salmon, fresh, ice, lbs.	Mackerel, barrels.	Herring, barrels.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.				Value.
<i>Digby County.</i>			\$			\$			\$		\$			
Digby.....	21	1026	29800	337	6	150	10	240	120				1000	
Bay View.....					5	125	10	200	100					
Broad Cove.....					9	225	18	360	180					
Gulliver's Cove.....					10	250	19	450	225			160	175	50
Waterford.....					6	150	11	450	225	2	120		639	60
Centreville.....					17	425	34	850	425				200	200
Sandy Cove.....					7	175	13	420	210	3	900	150	180	
Mink Cove.....	1	34	1200	9	7	175	14	450	225	1	1000		600	
Little River.....	1	11	540	5	17	425	34	680	340	2	600		442	
White Cove.....					3	75	6	180	90					
Whale Cove.....					8	200	16	400	200					
East Ferry.....	1	10	350	5	7	175	14	420	210	2	150		55	80
Smith's Cove.....										14	730			100
St. Mary's Bay.....										11	1900		1500	150
Weymouth.....					12	300	24	480	240	2	3800		950	90
White's Cove.....					30	750	60	2400	1000	1	900		500	
Belliveau's Cove.....					10	250	20	400	200	2	120		35	
Church Point.....	2	26	600	9	5	125	10	200	100	1	60		40	75
Meteghan.....					13	325	26	520	260	2	120		35	
Cape St. Mary's.....					12	300	29	900	450				100	250
Westport.....	23	470	18000	156	26	800	65	16000	8000				1000	2500
Freeport.....	8	140	4000	40	60	1000	120	8000	3500				1100	975
Tiverton.....	7	150	5000	55	25	500	50	6500	3500				200	300
Totals.....	64	1867	59490	616	295	6900	603	40500	19800	43	10400	510	8751	4630





RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.				Salmon, fresh, in ice, lbs.	Mackerel, barrels.	
	Vessels.				Boats.		Nets.		Weirs.				
	No.	Tonnage.	Value.	Men.	No.	Value.	Fathoms.	Value.	No.	Value.			
<i>King's County.</i>			£			£		£		£			
Bout Island.....							2,200	1,100	1	400			
Long Island.....							2,750	1,375	2	750			
Starr's Flats.....							3,000	1,500	3	800			
Kingsport.....				1	30	2	180	90					
Medford.....	2	40	1,375	5	2	50	4	702	351				
Blomidon.....	2	30	575	5	2	85	4	680	340	3	300		
Baxter's Harbour.....				19	400	38	2,000	1,000	1	200			
Hall's Harbour.....	2	42	600	4	25	500	50	5,000	2,500	6	1,400	9,000	30
Hunting Point and Chipman's Brook.....				3	80	6	1,500	750	2	600	3,500	5	
Black Rock.....				8	160	16	1,200	600	3	600	1,000	20	
Harbourville.....	1		500	3	12	300	24	1,500	750	4	800	2,000	
Ogilvie.....		28		7	200	14	1,000	500	1	250	1,000		
Morden.....				7	200	14		350	175	2	300	350	
Scott's Bay.....				1	25	2	4,000	2,000	3	1,200			
Aylesford.....											600		
Avonport.....				12	200	12	4,440	1,420	1	200			
Gaspereaux and Kentville.....											1,000		
Totals.....	7	140	3,050	17	99	2,230	186	30,502	14,451	32	7,800	18,450	55



RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.								
	Vessels.				Boats.		Nets.		Weirs and Traps.		Salmon, fresh in ice, lbs.	Salmon, smoked, lbs.	Mackerel, bar- rels.	Herring, bar- rels.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Fathoms.	Value.	No.	Value.					
<i>Lunenburg Co.</i>			\$			\$		\$		\$					
Chester.....	4	123	2000	30	130	2500	125	20200	3500	38	15200	9500	600	950	400
Mahone Bay and Mar- tin's River.....	17	1218	59500	213	159	2700	74	17500	2800	11	4500	2300	225	300	405
Fox Point.....	1	39	1500	9	85	1850	120	63500	6000			550		600	600
Mill Cove.....					70	1500	73	52000	5200			540		450	530
Lodge.....					21	575	30	25000	2100			280		180	200
North-west Cove					54	1500	60	38000	4000			640		550	600
Aspotogan.....	1	14	250	3	30	750	30	19000	1400			400		450	435
Sandy Beaches.....					40	900	48	35000	3000			275		200	375
Blandford.....	1	24	800	10	88	2200	90	80000	5500	7	2800	600		550	1020
Little Tancook.....					43	1250	38	46500	4050	4	1600	125		175	340
Big Tancook.....	1	41	600	12	163	5600	185	135000	11500	9	3600	425		840	2800
Deep Cove.....					30	540	35	21600	2350	8	3500	1140	100	145	140
Lunenburg to Cross Island.....	72	5760	360000	1008	168	6800	186	27000	10668			260	100	1571	4261
East side La Have to New Dublin.....	54	3780	270000	728	450	9560	140	35000	17500	26	9170	350	108	600	4055
Petite Rivière to Coun- ty Line.....	7	490	35000	98	250	5460	164	23500	11750			1308		290	5000
Totals.....	158	11489	729650	2111	1781	43685	1398	638800	91318	103	40370	18693	1133	7851	21161





RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.				Salmon, fresh, in ice, lbs.
	Vessels.				Boats.			Nets.		Weirs and Traps.		
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	
<i>Shelburne County.</i>			£			£			£		£	
Barrington.....	5	77	2250	31	55	1300	60	13000	1200			500
Wood's Harbour.....	3	64	2700	22	125	2200	119	20000	1800	1	2000	
Shag Harbour.....	6	106	3150	44	40	1000	45	15000	1250			
Bear Point.....	1	13	300	6	55	1000	35	10000	1000			
Cape Island.....	12	270	6700	93	375	7000	450	37500	5500	7	12000	
Port la Tour and Baccaro.....	1	88	3000	16	230	3000	120	50000	6000			
Upper Port la Tour.....	1	10	400	5	40	400	40	16000	650			
Cape Negro and Blanche.....					70	775	70	12000	850			
Cape Negro Island.....					55	1100	57	16000	1000	1	1200	
Port Clyde.....					4	40	4	600	30			4000
North-east Harbour.....	2	60	1500	17	9	900	24	6400	1065	1	325	2100
Black Point and Red Head.....					45	2780	75	16000	2600			
Roseway and McNutt's Island.....					47	3500	80	15900	2500			
Gunning Cove and Birchton.....					39	1600	65	8300	1385			375
Shelburne and Sand Point.....	5	318	11500	70	47	1300	74	18900	3150			1960
Jordan Bay.....	3	201	8000	45	24	1140	35	7500	1250			
Jordan Ferry.....					25	875	32	5000	830			5000
Lockeport.....	23	1210	59500	250	70	5500	140	22500	4500			650
Totals.....	62	2417	89000	599	1355	35410	1001	290600	36560	10	15525	14585



RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.				Salmon, fresh, in ice, lbs.	Salmon, smoked, lbs.	
	Vessels.				Boats.		Nets.		Weirs and Traps.				
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Number.			Value.
<i>Queen's County.</i>			£			£			£		£		
Liverpool .....	2	110	3900	21	23	550	42	2930	1023			1980	
Milton .....					7	70	10	80	36			3080	
Port Hebert .....					6	102	11	180	63				
Port Joli .....					25	870	34	672	219				
Port Mouton. ....	1	39	2400	7	90	1800	95	4178	1480				
Hunt's Point, White Point and Somerville .....					26	506	46	2600	763				
Western Head .....					35	650	43	3095	866				
Moose Harbour and Black Point.					16	231	25	1260	450				
Brooklyn .....	3	75	4600	20	17	300	23	1060	350			200	
Eagle Head and Beach Meadows.					36	560	48	1568	572			200	
East and West Berlin .....					30	593	46	1927	635	1	800	120	
Port Medway .....	2	168	6300	24	60	1270	87	4280	1453	1	1000	11417	500
Gull Island .....					7	120	9	350	104				
Mill Village .....					60	480	60	1674	600			3725	450
Greenfield .....					6	60	20	100	40			2200	
Totals .....	8	392	17200	72	444	8162	599	25954	8654	2	1800	22922	950

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

KINDS OF FISH.														FISH PRODUCTS.			VALUE.	
Mackerel, barrels.	Herring, barrels.	Alewives, barrels.	Cod, cwt.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Clams, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.		Fish used as manure, barrels.
54	560	9	1302	32	108	83	600	...	500	...	...	...	...	...	838	80	...	\$ cts.
...	35	...	96	16	...	13	75	...	...	...	...	1	...	4368	27	20	45	10,767 20
...	274	16	567	17	...	45	...	...	...	...	3500	25	...	...	56	60	300	616 00
...	3246	...	1117	12	...	68	925	...	...	...	...	2	20	56640	380	180	550	1,355 32
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4,692 40
12	577	...	362	22	...	36	...	...	...	...	...	...	13	26400	100	75	260	28,606 60
73	388	...	625	50	...	59	680	...	2	...	...	...	...	...	510	100	...	8,580 00
5	208	...	235	15	...	33	510	...	2	...	...	1	...	11472	60	50	120	6,267 00
...	125	6	605	13	341	205	3850	...	...	...	...	...	...	...	800	40	...	4,008 08
131	500	6	306	49	8	31	...	...	...	...	...	...	...	60480	180	90	600	5,856 50
9	400	5	150	10	...	24	105	...	2	...	...	...	...	32928	259	90	300	14,691 70
10	1088	97	1614	121	5	110	...	...	800	2	2500	10	...	10800	900	180	100	7,688 52
...	160	...	72	...	...	4	...	...	...	...	...	...	...	...	...	10	...	18,206 90
...	...	600	...	...	...	...	...	30	1000	...	5500	16	...	...	...	...	...	1,063 00
...	...	610	...	...	...	...	...	...	30.0	...	...	...	...	...	...	...	...	4,370 00
294	7561	1349	7051	357	462	711	6745	30	5300	8	11500	55	33	203088	4110	975	2272	3,485 00
Lobsters, shipped alive, 113 tons at \$40. ....																		4,520 00
																		124,774 22



RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.					
	Vessels.				Boats.			Nets.		Weirs and Traps.		Salmon, fresh, in ice, lbs.	Mackerel, barrels.
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.		
<i>Yarmouth County.</i>			\$			\$			\$		\$		
Sanford.....	2	33	1100	10	36	360	72	5760	2700	2	3000	5000	304
Port Maitland.....	10	70	2600	50	15	160	30	2000	1200	2	1500	5000	900
East Pubnico.....	4	290	1360	70	6	75	12	300	200	1	50	.....	50
West Pubnico.....	12	795	29210	228	20	240	40	1966	800	3	1800	.....	800
Argyle.....	2	23	800	8	40	480	50	4000	1800	.....	.....	.....	264
Yarmouth.....	13	1578	47600	204	51	1700	100	5000	2400	2	3200	4000	905
Tusket Wedge.....	5	356	13700	85	25	400	35	3000	1600	6	150	.....	490
Tusket and Islands.....	.....	.....	.....	.....	100	1200	120	12000	5600	1	75	12000	.....
Sluice Point.....	1	10	300	5	20	300	32	1600	800	3	180	.....	120
Eel Lake and Brook.....	.....	.....	.....	.....	35	420	43	2000	1200	1	60	.....	.....
East and West Branches.....	.....	.....	.....	.....	80	800	120	2200	1400	.....	.....	.....	.....
Salmon River.....	.....	.....	.....	.....	30	240	40	2500	1000	.....	.....	800	.....
Arcadia and Little River.....	1	25	800	5	18	350	36	2240	860	1	60	.....	160
Totals.....	50	3180	97470	665	476	6715	730	44566	21560	22	10075	26800	3993

the Fisheries, Quantity and Value of Fishing Material, &amp;c.—Nova Scotia—Con.

KINDS OF FISH.														FISH PRODUCTS.			VALUE.
Herring, barrels.	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, barrels.	Pollack, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	Fish used as manure, barrels.	
2750	20	1100				225	10850										\$ cts.
1500		2500		500		500	10000	10						200	200	1600	23,838 50
120		3232	4	410		495	1300							625	225		37,650 00
300		8400	13	1800		300	12000			20				2500	500		19,279 00
410	200	723				26	1000					20	62400	500	200		59,460 00
7350		14557	10	1506	1180	4307	179600			300		32	115200	4050	800		19,121 50
750		5525	8	600		675	10000			10		5		5600	500		172,912 00
	1400							30	600		60000	65	153600				42,920 00
164	80	95				93	300					20					34,214 00
	125	25			500				500		3000	150					3,761 00
	700							20	3000			20					3,875 00
	400								700		2000	30					3,850 00
											2000						2,430 00
2400	50	200		20							2000	125					15,575 00
15564	2975	36357	35	4836	1680	6621	225050	60	4800	330	67000	467	331200	15475	2475	1600	438,886 00
Lobsters, shipped alive, 1,486 tons at \$40.....																	59,440 00
Finnan haddies, 200 cases at \$2.40.....																	480 00
Alewives, smoked, 50 M. at \$8.....																	400 00
Frost fish, 200 barrels at \$10.....																	2,000 00
Whitefish, 1,000 lbs. at 10c.....																	100 00
																	501,306 00

## RECAPITULATION

Of the Yield and Value of the Fisheries for District No. 3, Nova Scotia, 1892.

Kinds of Fish.	Quantities.	Rate.		Value.	
		\$	cts.	\$	cts.
Salmon, fresh..... Lbs.	112,910	0	20	22,582	00
do smoked..... "	2,083	0	20	416	60
Mackerel, pickled..... Brls.	21,724	14	00	304,136	00
do fresh..... "	1,088	14	00	15,232	00
Herring, pickled..... Lbs.	85,972	4	50	386,874	00
do smoked..... Brls.	260,500	0	02	5,210	00
Alewives, pickled..... Brls.	7,759	4	50	34,915	50
do smoked..... No.	50,000	80c. per 100		400	00
Cod..... Cwt.	405,013	4	50	1,822,558	50
Cod tongues and sounds..... Brls.	655	10	00	6,550	00
Hake..... Cwt.	46,177	3	00	138,531	00
do sounds..... Lbs.	24,380	0	50	12,190	00
Pollack..... Cwt.	54,410	3	00	163,230	00
Haddock, dried..... "	105,421	3	50	368,973	50
do fresh..... Lbs.	40,000	0	02	8,000	00
do smoked..... Cases.	16,084	2	40	38,601	60
do canned..... "	1,264	5	00	6,320	00
Halibut..... Lbs.	1,373,560	0	10	137,356	00
Shad..... Brls.	942	10	00	9,420	00
Bass..... Lbs.	3,000	0	06	180	00
Trout..... "	35,800	0	10	3,580	00
Squid..... Brls.	974	4	00	3,896	00
Smelt..... Lbs.	92,500	0	05	4,625	00
Eels..... Brls.	848	10	00	8,480	00
Clams..... "	33	7	00	231	00
do preserved..... Cans.	650	0	12	78	00
Lobsters, preserved..... "	1,035,264	0	14	144,936	96
do fresh and alive..... Tons.	4,740	40	00	189,600	00
Frost fish..... Brls.	200	10	00	2,000	00
Whitefish..... Lbs.	1,000	0	10	100	00
Scallops..... Doz.	350	0	50	175	00
Fish oil..... Galls.	153,280	0	40	61,312	00
do bait..... Brls.	41,240	0	50	20,620	00
do manure..... Brls.	18,926	0	50	9,463	00
do guano..... Tons.	228	25	00	5,700	00
Total value.....				3,936,473	66

RETURN showing the Value of Vessels, Boats, Nets, &amp;c., engaged in the Fisheries of District No. 3, Nova Scotia, 1892.

Articles.	Value.	Total.
	\$	\$
362 vessels of 19,912 tons .....	997,730	
4,656 boats.....	107,862	
1,087,726 fathoms of nets.....	200,818	
30 seines.....	1,800	
225 weirs and traps.....	88,120	
35 canning establishments, including boats, smacks, &c.....		1,396,330
115,300 lobster traps.....		67,410
Total.....		92,240
		1,555,980

STATEMENT showing the distribution of Lobsters, Canneries and Traps in the above District.

County.	No. of Canneries.	No. of Traps.	Value.
			\$
Annapolis.....		5,200	
Digby.....	3	15,500	
King's.....		1,200	
Lunenburg.....	7	15,400	
Queen's.....	11	14,000	
Shelburne.....	9	33,000	
Yaimouth.....	5	31,000	
	35	115,300	159,650



RECAPITULATION by Counties, showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, and the Total Number of Men employed, &c., in the whole Province of **Nova Scotia**, for the Year 1892.

COUNTIES.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.				KINDS OF FISH.										
	Vessels.			Boats.			Nets.		Weirs.		Mackerel.				Herring.		Alwives, barrels.	Cod, cwt.			
	No.	Tonnage.	Value.	Men.	No.	Value.	Fathoms.	Value.	No.	Value.	Salmon, in cans, lbs.	Mackerel, barrels.	Mackerel, in cans.	Herring, barrels.	Herring, smoked, lbs.						
Cape Breton.....	9	152	2880	46	782	21963	1485	31443	70680		48	400	20	16310		1717	3365	1000	609	15497	
Inverness.....	10	346	7500	81	813	29961	2010	65674	65674				6	72272	1880	2824	7300		1673	36279	
Richmond.....	62	1934	23460	448	1143	13106	1964	163660	163660					4063		6716	12581		1637	24634	
Victoria.....	2	67	700	6	1032	33603	1827	61457	61457				189			1193	2786		347	22985	
Antigonish.....	1	12	200	3	190	3140	314	62200	62200					44120		577	1974		294	1108	
Colechester.....					81	1705	191	13746	2477					14750			89	16800	60	184	
Cumberland.....					161	4509	221	4684	2153					6180		53	675		755	322	
Guysborough.....	16	489	10750	79	1764	49707	2218	234972	53387	81	12790	99	48570	375	600	9825	30170		1571	19814	
Halifax.....	85	2209	57400	570	2539	44379	3055	365845	41947				6	21716	850	110	3843	2000	9599	519	32793
Hants.....					116	1542	128	10145	2808	6	220			13235			47		348	323	
Pictou.....					241	3951	373	6209	3165					46570		24	881		20	102	
Annapolis.....	13	427	1870	108	206	4760	346	16804	8475	13	2150		10950			197	5770	50000	115	6460	
Digby.....	64	1867	59490	616	295	6900	603	40500	19800	43	10400		510			8751	4630	20000		49318	
King's.....	7	140	3050	17	99	2230	186	30502	14451	32	7800		18450			55	3279	190500	1210	1585	
Lunenburg.....	158	11489	729650	2111	1781	43683	1398	638800	91318	103	40370		18693	1133		7851	21161		512	251936	
Queen's.....	8	392	17200	72	444	8162	599	25954	8654	2	1800		22922	950		294	7561		1349	7051	
Shelburne.....	62	2117	89000	599	1355	35410	1001	290600	36560	10	15525		14585			583	28007		1598	52906	
Yarmouth.....	50	3180	97470	665	476	6715	730	44566	21560	22	10075		26800			3993	15564		2975	36357	
Totals.....	547	25121	1100620	5421	13518	315428	18649	2152998	446477	360	91530	320	400996	3308	2590	48496	2000	155529	278300	15592	559054

RECAPITULATION by Counties, showing the Number, Tonnage and Value of Vessels, &amp;c. —Nova Scotia—Concluded.

COUNTIES.	KINDS OF FISH.										FISH PRODUCTS.					VALUE. \$ cts.			
	Cod Tongues and Sunds, barrels.	Pollack, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Bas, lbs.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Fels, barrels.	Oysters, barrels.	Loobsters, cans.	Hake Sounds, lbs.	Fish Oil, gallons.		Fish Guano, tons.	Fish used as bait, barrels.	Fish used as ma- nure, barrels.
Cape Breton		195		2410	15400	2		8395	16900	287	55	278214	238605	1600	9183	55	2894	50	178,958 16
Inverness			1457	1947	2480		100	38280	37600	583	1047	238605	438332	1600	13498		4210		338,945 80
Richmond	20	286		5957	7200				32607	125		61104			8195		754		300,933 93
Victoria		70		497				3800	4200	67	1529				11771		2168		168,184 46
Antigonish			3048	580			3500	5120	28000	126	125	214050		6960	1580		1628		83,546 00
Colchester				28	2350	1166	990	2550	8568			16656			114		14		20,835 00
Cumberland		151		195	4555	235		2420	30150	19	627	392062					380		75,224 00
Guysborough		310		6207	12615		500	41790	41000	235		995808			11750		7361		587,876 00
Halifax	391	2589	4568	2852	142224			9820	16700	117		818036		2906	15826		2010		433,358 00
Hants		4		202	150	410	8070	3625	30000	220	193		883641				750		11,560 00
Pictou			30				300	850									1055		144,809 00
Annapolis	45	2448	2623	4980	34900	30	3000	8500	1500	17				24055	1999	228	4001	600	109,418 60
Digby	90	36207	36030	51274	579000	87		145					19488		59430		14249	9490	956,600 92
King's		461	19	607	800	725		1800	5000						1130	2045	1130	2045	49,275 00
Launceston	485	4638	3846	29835	415665	10		1725	491	4500	196		226800	325	45874		2300	2916	1,579,027 30
Queen's		357	462	711	6745	30		5390	8	11500	55		203988		4110		975		975
Shelburne		5463	1517	11373	111400			13675	3000	113			254688		26392		16110		124,774 22
Yarmouth	35	4836	1680	6621	225050	60		4800	330	67000	467		331200		15475		2475	1600	616,071 62
Totals.	1066	59472	55550	126296	1506834	2755	16370	152450	338425	2027	3776		5372672	35846	225197	283	64629	20880	6,340,724 01

## RECAPITULATION

Of the Yield and Value of the Fisheries of the whole Province of **Nova Scotia**,  
for the year 1892.

Kinds of Fish.	Prices.	Quantity.	Value.	Total Value.
	\$ cts.		\$ cts.	\$ cts.
Salmon, pickled..... Brls.	16 00	320	5,120 00	
do fresh..... Lbs.	0 20	400,996	80,199 00	
do smoked..... "	0 20	3,308	661 60	
do in cans..... "	0 15	2,590	338 00	
Mackerel..... Brls.	14 00	49,601		86,368 60
Herring, pickled..... "	4 50	155,529	699,882 00	694,416 00
do smoked..... Lbs.		278,300	5,902 00	
Alewives, salted..... Brls.	4 50	15,592	70,165 50	705,784 00
do smoked, per 100..... No.	0 80	50,000	400 00	
Cod, dried..... Cwt.	4 50	559,054	2,515,746 00	70,565 50
do tongues and sounds..... Brls.	10 00	1,066	10,660 00	
Haddock, dried..... Cwt.	3 50	126,296	442,036 00	2,526,406 00
do fresh..... Lbs.	0 02	40,000	8,000 00	
do smoked..... Cases.	2 40	16,084	38,601 60	
do preserved..... "	5 00	1,264	6,320 00	
Hake, dried..... Cwt.	3 00	55,550	166,650 00	494,957 60
do sounds..... Lbs.	0 50	35,846	17,923 00	
Pollack, dried..... Cwt.	3 00	58,015		184,573 00
Halibut..... Lbs.	0 10	1,560,534		174,045 00
Shad..... Brls.	10 00	2,755		156,055 00
Bass..... Lbs.	0 06	16,370		27,550 00
Trout..... "	0 10	152,450		982 00
Smelt..... "	0 05	338,225		15,245 50
Squid..... Brls.	4 00	9,503		16,910 35
Eels..... "	10 00	2,627		38,012 00
Oysters..... "	3 00	3,776		26,270 00
Clams..... "				11,328 00
Lobsters..... Cans.	14	5,372,672	752,173 66	309 00
do fresh and alive..... Tons.		4,880	193,100 00	
Frost fish..... Brls.	10 00	200		945,273 66
Whitefish..... Lbs.	0 10	1,000		2,000 00
Scallop..... Doz.	0 50	350		100 00
Fish oil..... Galls.	0 40	225,197		175 00
do bait..... Brls.	1 50	64,629		90,078 80
do manure..... "	0 50	20,880		55,803 00
do guano..... Tons.	25 00	283		10,441 00
Total for 1892.....				7,075 00
do 1891.....				6,340,724 01
Decrease.....				7,011,300 53
				670,576 52

## RECAPITULATION

SHOWING the Number and Value of Vessels, Boats, Nets, &c., engaged in the Fisheries  
of **Nova Scotia**, with an Approximate Value of other Fishing Material for the  
year 1892.

Articles.	Value.	Total.
	\$	\$
547 vessels, 25,121 tons.....	1,100,620	
13,518 boats .....	315,428	
2,152,998 fathoms of nets.....	446,477	
Seines.....	18,064	
360 weirs and traps.....	104,630	1,985,219
182 lobster canneries.....	233,050	
334,610 lobster traps .....	222,899	455,949
Hand-lines, trawls, &c.....		54,500
Steamers, smacks and punts. ....		12,500
Fishing piers, ice-houses. &c. ....		87,740
Total.....		2,595,908



## APPENDIX B.

## NEW BRUNSWICK.

District No. 1, comprising the county of Charlotte.—Inspector, J. H. Pratt, St. Andrew's.

District No. 2, comprising the counties of Restigouche, Gloucester, Northumberland, Kent and Westmoreland.—Inspector, R. A. Chapman, Moncton.

District No. 3, comprising the counties of Albert, St. John, King's, Queen's, Sunbury, York, Carleton and Victoria.—Inspector, D. Morrow, Oromocto.

## DISTRICT No. 1.

ANNUAL REPORT ON THE FISHERIES OF DISTRICT No. 1, NEW BRUNSWICK, FOR 1892, BY INSPECTOR J. H. PRATT.

ST. ANDREW'S, N.B., 31st December, 1892.

Hon. CHARLES H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit herewith my fourth annual report on the fisheries of District No. 1, New Brunswick, comprising the county of Charlotte and the outlying islands. I also inclose a synopsis of the annual reports of the several fishery officers of the district.

It is to be regretted that these returns show quite a decrease when compared with last season's catch. This falling off is mainly due to the small size of the schools of sardine herring that struck the shores, and also to the extremely low figure offered in the markets for smoked herring. The failure of the usual winter school of large herring to put in their appearance also largely affects the value of the year's catch. The dull herring market at the beginning of the season and throughout the year compelled a number of herring fishermen to leave it and embark in some other occupation which would have more certainty of giving a financial return for the time and labour involved.

The market for canned sardines throughout the season was in a glutted condition, sales of stock were very slow, and our weir fishermen, of course, felt the effects of this stagnation very severely.

The value of the catch for 1891 is \$1,279,977.19, while that for the past season is \$863,465.90, showing a decrease of \$416,511.29.

## MACKEREL.

This much sought after fish did not strike inshore during the season, although they schooled very plentifully off in the Bay of Fundy. Good hauls were made by the large fleet of American and Canadian seining schooners that pursued them to all parts of the bay. At one time in September the fleet of American schooners numbered forty-five sail, and when augmented by the Canadian fleet it kept this steamer busy in the vain

endeavour to be in all portions of the Bay of Fundy at the one time. However, by the kindness of several patriotic correspondents, I was kept promptly, and truthfully informed of the movements of the different "wings" of this large fleet, and in consequence it is a pleasure to report that there were none of the usual rumours in circulation of the American fleet poaching in Canadian waters.

With such a large fleet pursuing them very few fish found their way inshore, and the annual reports of the several fishery officers will show a very small mackerel catch when compared with last season. Early in October, on the mackerel disappearing in a westerly direction, the fleet left these waters in pursuit of them.

#### HERRING.

The usual winter school of large herring, for reasons as yet unexplained, failed to strike into the Bay of Fundy last winter, and much to their disappointment, our fishermen were deprived of a fishery which is generally a lucrative one.

This winter herring fishing formerly afforded employment to many hundred men, but during the past three or four years very few vessels and men have found employment at it; the schools not seeking the Bay of Fundy as they usually have done in years gone by.

Countless theories have been advanced in explanation of the causes that affect the appearance and disappearance of this winter school of herring, but up to the present their failure to appear in this bay during the winter season remains as much a mystery as ever. Instead of remaining idle, however, the fishermen embarked in the lobster and line fisheries, which brought them good prices last winter and spring.

The run of small herring for sardine purposes has been considerably less than in previous years. On the Mascarene shore, in St. Andrew's Bay, they were unusually plentiful and some good fishing was given our fishermen there. On some nights illegal seining and "torching" was carried on, and the local officers met with considerable opposition in their endeavours to put a stop to it. The "Curlew" being engaged night and day protecting the three-mile limit in the Bay of Fundy from the large fleet of mackerel catchers there, prevented her from giving the necessary protection to the inland waters, but after delivering the "Hattie Maud" to the authorities in St. John, this illegal fishing was soon put a stop to. Several boats were seized, also the seines in them, and the owners thereof fined.

#### LOBSTERS.

The catch of lobsters for the year will be found to be above the catch for last year. Each year this fishery is increasing in importance and value, and even the fishermen are awaking to a sense of the necessity of more stringent protection of the fishing grounds of the lobster. In spite of warnings given repeatedly to our fishermen there are a number of them who cannot await the coming of the opening season, but will insist on commencing beforehand, therefore, during the past fortnight the crew of this vessel have been quite busily employed rowing among islands and ledges ferreting out and destroying lobster traps. Nearly four hundred were destroyed, and the lobsters liberated.

Four persons were fined \$10 each, three of whom paid, and a warrant committing the fourth to gaol for twenty days has been issued to a constable and will be served at once.

#### POLLACK.

This fish, although in the aggregate showing a decrease, will show an increase in the returns from the Campobello district. Not for many years were these fish so numerous in the Quoddy River fishing grounds, and splendid catches were made by everybody who fished on those grounds.

#### COD, HAKE AND HADDOCK.

The catch of these fish shows a slight decrease when compared with last season, due mainly to a less vigorous prosecution of the fishery, and also to the fact of the fish being more scattered than in former years.

The decrease can in some degree be attributed to the fact of the several officers being more careful in the collection of their returns than in past years.

#### TROUT AND SALMON.

Large numbers of sportsmen frequented the countless lakes and streams in this district during the past season seeking the above named fish, and with few exceptions returned amply pleased with the outlay of time and money by their good catches.

A splendid run of salmon ascended the St. Croix, and although at St. Stephen the poachers made several determined attempts at netting some, they all ascended to the spawning grounds. Great credit is due to the American fish warden French, at St. Stephen, for the successful manner in which he, acting in concert with the Canadian officer, manages to keep the poachers from setting their nets. But for the efforts of those two men very few salmon would arrive above tidal waters.

Numbers of salmon ascended the St. George River for the first time in its history, and they passed through all the fish-ways beyond the second falls. The sportsmen in the vicinity of the river were highly pleased at these fish successfully passing through the many fish-ways at St. George, and are hopeful of an increased run next season.

#### SEIZURES.

During the past year it was found necessary to place under arrest one United States fishing vessel, the mackerel seining schooner "Hattie Maud." Her offence was shipping men at Shelburne, N.S., in violation of the provisions of the treaty of 1818. This vessel since committing the offence had shunned all Canadian ports, and the night she was seized was her first entrance into any of them. Some hours after her entrance this steamer also entered.

At the Magaguadavic River a number of seines have been seized for the illegal seining of herring, and steps are now being taken for their confiscation. The two owners of one seine have been fined \$20 each and their seine destroyed. Another offender is now in St. Andrew's jail in default of the payment of a fine of \$10. Six other warrants have been issued committing the offenders to jail for terms of twenty and thirty days. During the month of December many of our fishermen embarked in the lobster fishery. Four of them were caught and were fined \$10 each, their traps confiscated and destroyed and the lobsters liberated. Three men paid the fine imposed and the fourth has disappeared, owing, no doubt, to the fact of a warrant being issued committing him to jail for twenty days, and is now in the hands of a most determined constable. About four hundred traps in all have been destroyed.

#### FISH-WAYS.

On the Ste. Croix all the fish-ways were well looked after; reports of salmon being interfered with in passing through the St. George fish-ways have been made, but no authentic information could be procured implicating any person. A new Hockin fish-way has been placed at St. George, but a new dam should be constructed below the gully there to replace the old one recently washed away.

It is expected that a fish-way will be placed at the dam at the mouth of the New River, Lepreaux, during the coming summer by the owner thereof, or, if not, the dam will be opened.

#### SYNOPSIS OF FISHERY OVERSEERS' REPORTS.

*Overseer Lord*, of West Isles, reports that the season has not been a very prosperous one for the fishermen of his district. Although an increase will be found in the catch of lobsters, haddock and large herring, in all other kinds of fish there has been a falling off. The decrease in the catch of sardine herring he attributes to the presence of numerous schools of silver hake and squid, that pursued and drove the few schools of small herring past the islands into St. Andrew's Bay.

Pollack were very plentiful, but as most of the fishermen in his district stuck to the weir fishing throughout the season, the catch will show a decrease when compared with last season.

An enormous decrease will be shown in the number of boxes of smoked herring put up in this district. Many of our fishermen have arranged to have the fish smoked in



Eastport; therefore, by sending them there fresh they have them smoked, and thus evade the payment of the heavy duties imposed on smoked herring going across the line.

All kinds of fish brought very good prices except sardine herring, and, from a financial stand-point, we are in a very good position to meet the winter.

*Overseer Frank Todd* in his report states that in his district all kinds of fish, with the exception of mackerel, were as plentiful as ever. Salmon ascended the river in greater numbers than ever before, especially in the latter part of the season.

Sardine herring were in great abundance until the fall set in, when they disappeared. On account of no steamer buying herring frequenting his district for the purchase of those fish, few were taken from the weirs.

All the fish-ways in the district were kept open and in good order during the season. Little, if any, poaching was done for salmon, although in spite of the precautions taken by him he feels certain some were taken by drift nets at St. Stephen on several nights.

He strongly urges the employment of a night watchman to patrol the river on the Canadian side in order that some of those lawless characters at St. Stephen and vicinity may be brought to justice.

*Overseer Barry* reports alewives very plentiful in the Magaguadavic River in the spring, but thinks not many got through the fish-ways on account of the loss of the dam and fish-way at the head of the "gully."

Salmon made their appearance the first week in July and succeeded in ascending the fish-ways to the Upper Falls, which they were successful in climbing, after some necessary repairs were made to the fish-way at that place. It was a great surprise to the inhabitants to have such a run of salmon in the river for the first time. The overseer thinks this run is owing to the fry planted in the head waters of the river some years ago. If fortune favours us henceforth with an annual run of those fish, we will ere long have our river well stocked. I would earnestly suggest, however, that a stock of fry be placed in this river each season, as there can be no doubt whatever that the Magaguadavic, with its numerous chain of lakes, has no superior in the province as a salmon river.

Trout have been very abundant in all the lakes and streams, but were only caught by sportsmen. The fish-ways are all in very good order and have been carefully looked after. One ladder and dam was washed away last spring and one was added by department during the summer. This new one, built on the Hockin principle, seemed to be a success. Several other fish-ways are up the river at Upper Falls and Linton stream.

This new fish-way, no doubt, will prove beneficial and fulfil its intended purpose, and the people here appreciate it very much indeed. Considerable time and expense is necessary in keeping the fish-ways clear of the large amount of drift debris that comes down river, and they have to be attended to at least twice each week. Few, if any, violations of the Fisheries Act have occurred and the people seem willing to respect the law, more particularly since the salmon have appeared.

*Overseer Brown*, of Campobello, in his report states that there has been an increase in the catch of large herring, pollack, hake, haddock, halibut and lobsters. Pollack were very plentiful and good prices were paid for them. Lobster fishing was better than last season, although not so many traps were used; but the men went further off shore than usual and succeeded in doing a good season's business. Weir fishing has been a failure, some not even taking a fish. He thinks this decline can be attributed to the numerous schools of squid which appeared last summer, and drove the schools out of the weirs. Very few herring were smoked in my district on account of the heavy United States duty. They were sold fresh to the Americans and smoked on their side of the boundary line. As good prices were paid for all kinds of live fish to our fishermen, they feel they have made a good season's work. The close seasons have been well observed.

*Overseer Campbell*, of St. Andrew's, states in his report that this season has not been a successful one. A good catch of lobsters was made and prices were slightly better. He thinks that in the first of the lobster season, when the female lobsters are not easily detected, except by a fisherman, many female lobsters are taken and killed, which is borne out by the catch, showing that there are fewer lobsters bred. A few years since and they would run 35 to the 100 pounds, while now they run about 60 to



the 100 pounds. To improve the catch I would advocate a close season of one or two years in Passamaquoddy Bay, and raise the size limit to 10½ inches. Nine inches is too small and only sell for one cent each, while those of 10½ inches bring 5 to 10 cents each. A lobster fishing season from the 1st March to 15th or 30th July, would be the best for this district and more satisfactory to the fishermen.

Little line fishing has been carried on, and that for local consumption only. No net herring appeared last winter but there are some prospects of them appearing this winter. Smelts appear regularly and often some are taken in the weirs. Some few years since a few enterprising men attempted to make a business of it but their efforts were attended with failure. On account of the great rise and fall of the tides I fear they will meet with little success. The regulations regarding smelts prohibit their use for manure, and some similar regulation regarding young herring should be made.

Fair catches of sardine herring were made in the weirs, but prices have been low. Brit frequented the weirs during the middle and latter part of season, mixing with the herring, and buyers refused to purchase. Owing to unusual causes some illegal fishing has been engaged in at the Mascarene shore. I spent considerable time there but failed to make any seizures. Warden Dick attempted to seize some seines and was roughly handled and the seines retaken. As soon as some of the parties were arrested the work was brought to a close. As an impression seems to be entertained by the fishermen that seizures can only be made while in the act of fishing illegally, it renders matters very difficult for an officer to act. The illegal fishing is only carried on at night. If boats, gear and fish could be seized on suspicion, compelling the owners to prove themselves innocent, an officer's duties could be greatly simplified. Buyers then would not buy and illegal fishing would receive a death-blow. A small steam launch connected with the "Curlew" would also be of use in breaking up illegal work, and allow the "Curlew" more time for the outside work. Land-locked salmon in the Chamcook Lakes was not as good as last season but the salmon, are steadily increasing. Trout fishing has been very good in all the lakes and streams. No person has been engaged in curing any fish in this district and the different plants have remained idle.

*Overseer Ash*, of Beaver Harbour, reports that all kinds of fish have not been as plentiful as last season, excepting large herring and halibut. Sardine herring brought better prices than last season. There were not so many engaged in the lobster fishing as last season. Mackerel were in numerous schools off shore, but owing to the large number of American seiners pursuing them very few found their way into the weirs. Some illegal fishing for herring was carried on in several parts of the district which is difficult to stop, as an officer cannot be in all parts at one time.

*Overseer McLaughlin*, of Grand Manan, reports that compared with last year there has been a falling off in the catch of all kinds of fish. Weir herring have been as numerous as ever but their curing does not repay the expenses attached, and many are leaving this business and engaging in other industries. Thirty-three weirs were built last year, only twenty-four this year. Hake has been a fair catch, but cod has been a failure, owing in a great measure to the immense numbers of dog-fish and silver hake frequenting the bay during the last four years. In Europe silver hake (or whiting) is much prized, both fresh and salted, but in this country they have never been so numerous as to attract notice and it now remains for some person to bring them to public notice.

I would strongly advocate that all maritime governments offer a bounty of one cent each for the destruction of dog-fish. If something is not done it will only be a question of time when those fish will have possession of the Bay of Fundy. One cent each, together with what would be paid for their bodies at a fertilizer factory and their lives for oil, would make it pay to catch them.

Excepting at North Head, herring have been in those waters in as large schools as ever. Never was better herring fishing than what was at Three Islands and Long Pond Bay, and around Southern Head the waters were alive with schools of both large and small herring. There was a small demand for them. Americans buy them at such a low figure that what profit there is in them is very small indeed. The number of smoke houses has decreased during the year, some fishermen taking down their buildings

and removing them to the state of Maine. More energy has been put into the line fishing this season, but the fish seem more scattered, not being in schools as formerly.

Mackerel schooled around this island more thickly than ever, but were very wild and avoided nets and weirs, and few were taken. No doubt the large schools outside were broken up and scattered by the numerous seining schooners pursuing them.

The usual close seasons and the laws generally have been well observed and no complaints have been made.

I have the honour to be, sir,

Your obedient servant.

JOHN H. PRATT,

*Inspector of Fisheries.*

## DISTRICT No. 2.

REPORT ON THE FISHERIES OF DISTRICT No. 2, COMPRISING THE COUNTIES OF RESTIGOUCHE, GLOUCESTER, NORTHUMBERLAND, KENT AND WESIMORELAND, FOR THE YEAR 1892, BY INSPECTOR R. A. CHAPMAN.

MONCTON, N.B., 31st December, 1892.

Hon. CHARLES H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit my report for the year 1892 of the fisheries of District No. 2, in the province of New Brunswick, with extracts from the reports of local fishery officers; also tabulated statements giving the product and values by districts and counties, together with an estimate of the capital employed in the prosecution of the fisheries. These returns show a small increase in the aggregate over last year's catch, and a very marked advance on that of the year immediately preceding. The figures for the past three years are:

In 1890.....	\$ 1,445,194.82
1891.....	2,075,392.47
1892.....	2,144,107.40

There has been a gain on almost every kind of fish except smelt and lobsters.

## SHAD

Again show a very considerable increase, and if the parent fish were protected during their spawning time, this gain could and would be multiplied many times.

## SALMON.

There was quite a falling off in the catch on the Miramichi River and its tributaries during the past season owing to these fish striking in late last spring, and unusual freshets near the close of the open season, but this deficiency is more than made up by a larger catch on the Bay des Chaleurs, Restigouche River, &c. Large quantities of salmon and grilse, especially the latter, are reported in all the streams frequented by them last fall.

## HERRING

Last spring were taken in increased quantities except in one or two places in Gloucester county. Fall fish were not very plentiful on the Miscou and Caraquet banks.

## SMELTS.

In my preliminary report I estimated the falling off in the catch of smelts from previous year at half a million pounds. It actually amounts, when returns are all in, to about three-quarters of a million, owing almost entirely to the very open winter, consequent want of ice to fish upon, and bad weather for shipping. Good and very profitable fishing is reported this winter since the ice formed, but much later in commencing than usual in most places.

## COD.

The catch of this staple fish is hardly up to that of 1891. Good fishing is reported during the fall and spring, but very poor in mid-summer.

## HAKE.

A very large increase on last year's take is reported, and many more could have been caught at Richibucto, &c., if a ready market for them was available.

## HALIBUT

Though not quite up to the figures for 1891, are away ahead of any previous year.

## MACKEREL

Were again abundant on our coasts and more were taken than in 1891: after an absence of some years they seem to have returned to our waters.

## TROUT.

A larger catch of trout is again reported owing, I believe, to better protection and perhaps in some cases fuller returns.

## LOBSTERS.

Notwithstanding the large number of new factories opened last spring, the whole pack is not quite up to last year's; the falling off is greatest on the southern part of the coast where factories are most abundant; there is great danger of over-fishing.

## OYSTERS.

A considerable increase in quantity of oysters raked, is reported; especially from Northumberland County. Buctouche Bay, in Kent County, was fearfully over-fished last winter through the ice, the prohibition now enforced, will help, I believe, to restore the exhausted beds at Buctouche, Cocagne, Richibucto, &c., &c.

## SYNOPSIS OF FISHERY OVERSEERS' REPORTS.

## RESTIGOUCHE COUNTY.

*Overseer J. A. Verge* says 51,558 lbs. of salmon were caught this year against 39,080 last year, an increase of 12,478 lbs., and three stands of nets not fished. The anglers also did well. The spawning grounds are reported well stocked with fish, which is promising for the future. Trout are fished for with hook and line only. Lobsters are caught but for domestic use, in my district.

*Overseer A. McPherson*, reports the quantities of fish taken varies in respect of kinds, while as a whole there has been an average catch. The salmon our greatest staple fishing, better by twelve per cent than last year, has nearly approached its former average.

## GLOUCESTER COUNTY.

*Overseer James Hickson* states salmon fishing has been very fair along the lower portion of my district. The catch of mackerel has been considerably larger this year than last. Cod and herring are our staples, and it only needs extra expenditure and exertion to double the catch any time, the cod fishing has been very good this season. The take of lobsters was very good at the first of the season but fell off considerably towards the close. The anglers report fair sport on the Nepisiguit River; there were great quantities of grilse both in the bay and river this year.

*Overseer J. D. Theriault* reports that fishing of all kinds prosecuted in his district has met with fair results this year.

*Overseer Jos. L. Haché* reports again a falling off in oysters, cod not quite up to last year, other kinds of fishing fair.

*Overseer H. D. Albert* reports an increase in lobster fishing. Cod not quite so good as in 1891 considering the number of boats engaged.

*Overseer Adolphe Aché*, says the mackerel fishing was very much better than last year. Cod fishing during the month of June was very good, after that it failed almost completely. The fish became more abundant as the season advanced, but owing to the roughness of the weather our fishermen could not make large catches. On the whole it was considerably less than last year. I must say, however, that last year's fishing was



very much above the average. The lobster pack was about the same as 1891, the lobsters, however, were very much larger than heretofore. Herring under the average of other years.

*Overseer William Walsh* reports a very large catch of alewives, a very small catch of smelts, little change in other branches.

*Overseer Oliver Robicheau* reports fair fishing in his district, alewives exceedingly plentiful. Salmon, mackerel and herring also good. The catch of smelts very poor owing to the mildness of the winter.

#### NORTHUMBERLAND COUNTY.

*Overseer Prudent Robichaud* reports a very considerable falling off in salmon in his district and a great decline in the take of smelts from that of 1891, other fishing fair, and up to or beyond the average.

*Overseer John G. Williston* reports a falling off in the catch of salmon, but that the fall run of these fish has been good in the rivers, and fishermen anticipate good fishing next year. Mackerel were very plentiful and the freezers got all they wanted. Herring, alewives, cod and hake plentiful, but as not much preparations are made to catch and preserve these fish, only a limited quantity are taken; they are very abundant, and only require capital invested to secure large quantities of these fish. Halibut have been unusually plentiful. Owing to the mild weather last winter, a small take of smelts was made. I have to report an unusually large catch of oysters. The lobster pack was fairly remunerative to all concerned.

*Overseer L. H. Abbott* reports a falling off in the catch of salmon and smelts, which are the principal fish caught in his district.

*Overseer P. Hogan* writes: As the salmon did not enter the river until late in June, and the two last weeks of the fishing season the fishermen could not fish their nets on account of heavy rain and high water, a slight falling off has taken place in his district; but the freshets enabled large numbers of salmon to reach the spawning grounds, and that there has not been so large a run of grilse for many years.

#### KENT COUNTY.

*Overseer Pierre L. Richard* reports smelts very scarce early in the season, but better later on, especially during the extension. Cod, mackerel, gaspereau, bass and ling very abundant, but not sufficient preparations made for their catch.

*Overseer W. F. Hannah* reports fair fishing in all its branches. Ling exceedingly plentiful early in the season; small bass also everywhere on the coast and in the estuaries and rivers. Smelt and lobster fishing about up to 1891.

#### WESTMORELAND COUNTY.

*Overseer Robert Goodwin* reports fishing as a whole has been good, herring, especially, were exceedingly plentiful, as also river fish, such as bass, eels and trout. The sawdust nuisance is almost a thing of the past. The fish-way in Doyle's dam is in good repair.

*Overseer Denis T. Cormier* reports a very considerable increase in the shad fishing, which is the principal one in his district, but reiterates the statement that this important industry can never assume its former great proportions until the fish are protected during the spawning season by prohibiting their take anywhere in the province before the 20th of June.

I have the honour to be, sir,

Your obedient servant,

R. A. CHAPMAN,

*Inspector of Fisheries.*

## DISTRICT No. 3.

REPORT ON THE FISHERIES OF DISTRICT No. 3, COMPRISING THE COUNTIES OF VICTORIA, CARLETON, YORK, SUNBURY, QUEEN'S, KING'S, ST. JOHN AND ALBERT, FOR THE YEAR 1892, BY INSPECTOR J. H. PRATT.

D.SS. "CURLEW,"

ST. ANDREW'S, N.B., 31st December, 1892.

Hon. CHARLES H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit herewith the annual report of the fisheries of District No. 3, New Brunswick, for the year 1892, with condensed reports of the several fisheries officers. I also inclose statements showing products and values by counties; also an estimate of the capital employed.

A slight decrease will be noticed in the aggregate value of the catch when compared with last season:—

Value for 1891.....	\$215,681 04
do 1892.....	192,678 50
Decrease.....	\$23,002 54

There has been a falling off in nearly all branches of the fisheries, which I attribute to the fact of there being a less vigorous prosecution of them, not that the fish are becoming any more scarce. Line fishermen seem to have met with poor success by their catches given, and a number of men did not engage in this branch this season

## HERRING.

Herring gave about a usual catch, but with the low prices offered in the various markets for this fish, whether barrelled, smoked or fresh, few men made any attempt at their capture.

## ALEWIVES.

An average catch of alewives was made and fair prices ruled for them during the season. Considerable feeling is manifested by the St. John river fishermen against the St. John harbour men, on account of the St. John men being allowed to fish on Saturday, while they are debarred by the regulations from doing so. They think, and quite rightly too, that all fishermen on this river should be treated alike.

## MACKEREL.

Although in numerous schools in the Bay of Fundy, this delicious fish failed to come within the reach of our shore fishermen and none were taken. The reason is quite plain, when we take into consideration the large fleet of United States fishing schooners pursuing them to all parts of the bay. Even off St. John harbour seiners could be seen at work, although well outside the three-mile limit.

## COD, POLLACK AND HAKE.

A large decrease is noticed in the catch of those fish, not owing to any scarcity on the shores, but solely because a large number of men did not care about engaging in a fishery when the compensation did not reach their expectations.

## HADDOCK.

The returns for this fish show about the same as last season. Prices were good all the season, and the demand was far in excess of the supply.

## SHAD.

The returns show about the same catch as last year. Complaints have been received regarding the sawdust and mill refuse deposited on the flats in the waters of Albert County, and driving this fish from their usual haunts.

## SALMON.

Quite an increase is to be noticed in the catch this season over last, mainly due, I am sure, to the increased vigilance of the guardians, and also to a larger number of sportsmen, both local and foreign, visiting the streams than ever before. The general public have little or no idea of the immense source of wealth those salmon rivers are to our people, both direct and indirect, and it is a pleasure for officers to be able to report on those game fish increasing in numbers annually.

## TROUT.

A slight increase is noticed in the returns for trout, and many of the officers believe that the waters frequented by them are being overfished, but this is denied by others.

## PICKEREL.

Quite a good business was done by those engaged in this fishery, and it was sharply carried on by them. While part of the catch was retained for home consumption, the greatest part was exported, principally to the United States markets.

## SYNOPSIS OF FISHERY OVERSEER'S REPORTS.

*Overseer Stewart*, of Albert county, reports that shad came up the Bay of Fundy one month earlier than usual, and in good condition, but as soon as mill refuse began running down the river and settled on the shores, they soon departed. This was especially noticeable in Little Rocher Bay, where shad was so numerous in former years. There was an increased run in the Petitcodiac this year. Herring fishing was a failure. Mackerel did not come into the bay here as formerly. Salmon were scarce and late arriving, owing to the water in the rivers being low. Trout were plentiful and good catches were made by sportsmen and others. The one fish-way in this county was repaired this summer and put in order. A great decrease has taken place in the fisheries in this county, caused, I am sure, by the sawdust and mill refuse settling on the feeding grounds, and something should be done at once. Close seasons have been well observed. The close season for taking salmon should extend to September 15 instead of August 15, as this fish are late in arriving here.

*Overseer Case*, of Queen's County, reports the catch of shad the same as last season, and an increase of alewives over former years. Fishing of all kinds is on the increase and becoming of more importance annually. Alewife fishermen are jealous of the St. John fishermen on account of being deprived of the Friday night fishing. Except the Friday night close time the fishing laws have been well observed. Salmon show a slight falling off from last season. Bass are very scarce from over-fishing in the Belleisle Bay, where they seem to lay during the winter season. The trout streams have been over-fished and I would earnestly advocate the prohibition of trout fishing for one or two seasons, so that our lakes and streams may be again stocked. There should also be a close season for pickerel from the last of May till the 1st of September. They are taken principally for export to American markets and often spoil during those warm months while being transported.

*Overseer Hoben*, of Sunbury county, reports an increase in the catch of shad and alewives. There has also been a large catch of perch and pickerel. Alewives are increasing in these waters notwithstanding the good catches. The only abuses that exist are the large amount of sawdust and buckwheat hulls that come down the rivers. Close seasons have been fairly well kept. I would suggest that the Friday night close time be enforced in future at St. John as it is enforced here.

*Overseer Ryan*, of Victoria county, reports that from information received there has been considerable illegal fishing in the Tobique River during September and October, but he had no orders to go there. The catch of salmon was small, owing, he says, not to the scarcity of fish, but to the lack of sportsmen to catch them. Therefore, the poachers got the benefit of the run in the autumn months, as there was not any protection given after the first day of October. Spearing salmon is still carried on in some localities and



the appointment of special guardians is the only remedy. Close seasons in my immediate vicinity have been well observed. Local fishing for trout is about the same as other years.

*Overseer Orr*, of York county, reports that the catch of salmon has fallen away about one-third, for which he cannot account. Very good salmon fishing was had by the numerous sportsmen who visited the Miramichi River, and the catch was double that of last year. The Burnt Hill Salmon Club looked well after the interests of the river fishing and stopped all poaching. The two special guardians did their duty well and faithfully and I can safely state that no poaching was done. On the St. Croix lakes, land-locked salmon and trout were very plenty and are increasing. I would recommend the guardian on those lakes be reappointed on the 1st March, and make two visits each month to them. The close seasons have been well observed, and no complaints have been made. I would strongly recommend a fish-way to be placed in the Eel River as soon as possible.

*Overseer O'Brien*, of St. John, reports that there was a falling off in the catch of gaspereaux this year, caused by the river being very low in April and first part of May, thus allowing the fish to pass through the falls to the river and lakes, where they were followed by our fishermen and fair hauls were made.

Shad were not so plentiful as last season, but in the Bay of Fundy a good catch was had. Prices for them were very good and made up for the falling off in the catch. Herring were more plentiful than in the previous season, but prices very low. The inspection of them was so strict also, that the fish were not worth catching, and our vessels were obliged to lie up. Salmon still show a falling away in the catch, and if the over-fishing in the Bay of Fundy and river is not stopped we will soon have nothing of those fish left but the name.

The decrease in the catch of line fish is due to the very few men fishing for them in consequence of the low prices paid. A good business was done last spring by selling alewives to bank fishermen for bait.

*Guardian Splane*, of Pisarino, reports that the catch of salmon this season was not up to the average. Shad fishing was very good, and showed an increase over last season. Lobster fishing was very good, and a good season's work was realized.

*Overseer Rourke*, of Saint Martin's, reports that, although much might be done by energetic fishermen in his district, very little is actually done in the fishing line. The natives there have lost all interest in fishing. One man operated here for a short time last winter and summer, and made a fair catch. No infringement of "The Fisheries Act" occurred.

*Overseer Belyea*, of Westfield, reports salmon fishing not as good as last season, on account of increased net fishing in St. John harbour, he thinks. Shad fishing was not as good this year as last on account of the fish being scarce. Alewives were more plentiful than last season in consequence of there being no freshet in the river, allowing the fish to come through the falls. All the close seasons have been well observed. Less pickerel were taken, as prices for them were low and few fished for them. I would strongly recommend that sturgeon fishing be allowed next season as there are a number of fishermen here having nets that will be a total loss if not used soon.

*Overseer Heine*, of Norton, reports that the last season's catch of shad have been below the average. Considerable illegal fishing has been carried on all over the county, which tended to prevent fish ascending the rivers. Some think the steam dredge at St. John kept the fish back. Alewives were very numerous and went further up the streams. Salmon were very numerous. No illegal salmon fishing was attempted. Shad fishing is the most valuable in this district, but where the most fishing is done the marshes are covered, and a canoe should be supplied.

*Overseer Gray*, of Springfield, reports that as he was only appointed in July last, he is unable to render as full a report as he would like, but the fisheries were well looked after. Good catches were made by sportsmen and others, and fair prices ruled in the markets for the catch.

I have the honour to be, sir,

Your obedient servant,

JOHN H. PRATT,

*Inspector of Fisheries.*





RETURN showing the Number, Tonnage and Value of Vessels and Boats, engaged in the Fisheries; Quantity and Value of Fishing Material, &c., District No. 1, Province of New Brunswick, for the Year 1892—*Concluded*.

DISTRICTS.	KINDS OF FISH.														FISH PRODUCTS.				VALUE.	\$ cts.																								
	Cod Tongues and Sounds, barrels.	Pollack, cwt.	Hake, cwt.	Hake sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Clams, canned.	Clams, shelled, brls.	Trout, lbs.	Frost fish, lbs.	Squid, barrels.	Flounders, lbs.	Smelts, lbs.	Pickarel, lbs.	Sardines, hhd.	Sardines, canned.	Lobsters, tons.	Lobsters, cans.			Fish Oil, gallons.	Fish Guano, tons.	Fish used as bait, barrels.	Fish used as manure, barrels.																				
Charlotte Co.																																												
West Isles . . . . .		4375	1640	2000	2000	2000			4000	500			6000	2000	8500			894	3000	1000	100		89,865 00																					
Ste. Croix . . . . .									1000	300			400		120								2,145 00																					
Magaguadavic . . . . .									5000			8000			4808			45		500	2000		27,596 50																					
Passamaquoddy . . . . .		240	720	3149	175	16000	30000	1200			10	2200			8375	150000	120	1440	5775	61	3075	300	110,021 60																					
Beaver Harbour . . . . .			4600	7500	1437	65800									170		410		33025	3550	15050		428,745 50																					
Grand Manan . . . . .	3	6425			1525						205				82		84		8577	1125	57		121,886 30																					
Campo Bello . . . . .		4054	10575	11645	4396	165000	30000	1200	10000	800	215	10200	6400	2000	22055	150000	7484	1440	50377	61	9250	17507	780,529 90																					
Totals . . . . .	3	15814	24315	24285	9533	246800	30000	1200															82,036 00																					
Home consumption and canned goods not elsewhere specified . . . . .																																												863,465 90
Total value . . . . .																																												

## RECAPITULATION

OF the Yield and Value of the Fisheries, District No. 1, New Brunswick,  
for the Year 1892.

Kinds of Fish.	Quantity.	Price.	Value.
		\$ cts.	\$ cts.
Salmon, fresh, in ice ..	Lbs. 525	0 20	105 00
Mackerel, salt ..	Brls. 295	14 00	4,130 00
Herring ..	" 15,435	4 50	69,457 50
" frozen, per 100 ..	No. 440,000	0 75	3,300 00
" smoked ..	Lbs. 14,163,000	0 02	283,260 00
Alewives ..	Brls. 150	4 50	675 00
Cod ..	Cwt. 10,452	4 50	47,034 00
" tongues and sounds ..	Brls. 3	10 00	30 00
Pollack ..	Cwt. 15,814	3 00	47,442 00
Hake ..	" 24,315	3 00	72,945 00
" sounds ..	Lbs. 24,285	0 50	12,142 50
Haddock ..	Cwt. 9,533	3 50	33,365 50
Halibut ..	Lbs. 246,800	0 10	24,680 00
Trout ..	" 10,000	0 10	1,000 00
Frost fish ..	" 800	0 05	40 00
Flounders ..	" 10,200	0 05	510 00
Smelts ..	" 6,400	0 05	320 00
Pickarel ..	" 2,000	0 05	100 00
Squid ..	Brls. 215	4 00	860 00
Sardines ..	Hhd. 22,055	4 50	99,247 50
" canned ..	Cans. 150,000	0 04	6,000 00
Lobsters ..	Tons. 748½	40 00	29,930 00
" canned ..	Cans. 1,440	0 14	201 60
Clams, shelled ..	Brls. 1,200	6 00	7,200 00
" canned ..	Cans. 30,000	0 05	1,500 00
Fish oil ..	Galls. 50,377	0 40	20,150 80
" guano ..	Tons. 61	25 00	1,525 00
" used as bait ..	Brls. 9,250	0 50	4,625 00
" used as manure ..	" 17,507	0 50	8,753 50
Home consumption, and canned goods not elsewhere specified ..			82,936 00
Total ..			863,465 90

NUMBER and Value of Vessels, Boats, Nets, Weirs, &c., engaged in the Fisheries of  
District No. 1, **New Brunswick**, for the Year 1892.

Number.	Material.	Value.	Total.
		\$ cts.	\$ cts.
60	Vessels, 996 tons .....	24,150 00	
1,003	Boats .....	63,821 00	
51,944	Fathoms of nets .....	20,232 00	
251	Weirs .....	96,100 00	
15,552	Lobster traps .....	12,987 00	217,240 00
1	Sardine factory and lobster factory combined .....	2,500 00	
1	Lobster and clam factory combined .....	1,000 00	
1	Fertilizing factory .....	40,000 00	
2	Ice houses .....	400 00	
502	Smoke houses and fixtures .....	85,900 00	
413	Fish houses and fixtures .....	47,600 00	
71	Oil presses and fixtures .....	5,395 00	
806	Trawls .....	15,058 00	
271	Weir seines .....	16,445 00	214,298 00
	Total value .....		431,538 00



## NEW BRUNSWICK—District No. 2.

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries; Quantity and Value of Fishing Material; Kinds and Quantities of Fish, and the Total Number of Men employed, &c., in District No. 2, Province of New Brunswick, for the year 1892.

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.				FISHING MATERIAL.						KINDS OF FISH.												
	Vessels.		Boats.		Nets.		Weirs.		Smelt Nets		Lobster Traps.		Salmon, brls.	Salmon, fresh in ice, lbs.	Salmon, smoked, lbs.	Salmon, in cans, lbs.	Mackerel, brls.	Mackerel, in cans.	Herring, brls.	Herring, smoked, lbs.	Alewives, brls.	Cod, cwt.	
	Tonnage.	Value.	Men.	No.	Value.	No.	Value.	No.	Value.	No.	Value.												
<i>Restigouche Co.</i> Tide Head to Dal- housie. Dalhousie to Belle- fleur Totals.		\$				\$		\$			\$			51560		20000							150
			30	600	36	7160							3800	3000	103280	100		400	47500			150	
			100	1600	150	15500		5	100														
				130	2200	186	22660		5	100					154840	100	20000		400	47500		150	
<i>Gloucester Co.</i> P��tit Rocher Bathurst, &c Grande Anse. Upper Caraquet. Lower Caraquet Shippegan and Mis- con. Pokemouche. Tracadie Totals.																							

† \* Mackerel traps.

**NEW BRUNSWICK—District No. 2—Continued.**

RETURN showing the Number, Tonnage and Value of Vessels and Bouts engaged in the Fisheries, &c.—Continued.

DISTRICT.	KINDS OF FISH.													FISH PRODUCTS.				VALUE.						
	Cod Tongues and Sounds, brls.	Pollack, cwt.	Hake, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Shad, brls.	Bass, lbs.	Trout, lbs.	Frost fish, lbs.	Squid, brls.	Flounders, lbs.	Smelt, lbs.	Pickarel, lbs.	Perch, lbs.	Eels, brls.	Oysters, brls.		Lobsters, tons.	Lobsters, cans.	Fish Oil, galls.	Fish Guano, tons.	Fish used as bait, brls.	Fish used as manure, brls.
<i>Restigouche Co.</i>																								
Tide Head to Dalhousie									10000										5					
Dalhousie to Bellefleur									2000				16700							63600			400	1000
Totals									12000				16700					5		63600			400	1000
<i>Gloucester Co.</i>																								
Petit Rocher	5	200	150						500			5000	7000							65000			2000	6000
Bathurst, &c.	8							3000	3500	1000			140000							160000			2000	
Grande Anse	4	400	350													50				108060			3000	2000
Upper Caraquet	5	400	400	740		1200		2000	1400		15		17000			20	750						1200	1000
Caraquet	12	2400	2000	400	120000			1800	400		10		15000			25	50			104400			7000	4000
Shippegan and Miscon	15	2500	4000	320	2500			20 21000					40000							417000			8500	5000
Pokemouche	4	120	130	150	1840			25 5400	3500	5000		1500	62000		200	50				65000		1400	40	2200
Tracadie	20	680	600	920	1260			20 1420	2200	1500 11		2500	46000		200	55				55000		800	1600	
Totals	73	6760	7630	2530	126800			90 34620	11500	7500 36		9000	327000		400	200	800			915060		24100	23350	19200

## NEW BRUNSWICK—District No. 2—Continued.

Return showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &amp;c.—Continued.

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.						KINDS OF FISH.												
	Vessels.			Boats.			Nets.		Weirs.		Smelt Nets.		Lobster Traps.		Salmon, fresh in ice, lbs.	Salmon, smoked, lbs.	Salmon, in cans, lbs.	Mackerel, brls.	Mackerel, in cans.	Herring, brls.	Herring, smoked, lbs.	Alewives, brls.	Cod, cwt.		
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	No.	Value.	No.										Value.	
Northumberland Co.			%		\$			%		\$			%		\$										

**NEW BRUNSWICK—District No. 2—Continued.**

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c.—Continued.

DISTRICT.	KINDS OF FISH.													FISH PRODUCTS.				VALUE.	\$ cts.						
	Cod Tongues and Sonnas, brls.	Pollack, cwt.	Hake, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Shad, brls.	Bas, lbs.	Trout, lbs.	Frost fish, lbs.	Squid, brls.	Flounders, lbs.	Smelts, lbs.	Pickarel, lbs.	Perch, lbs.	Eels, brls.	Oysters, brls.			Lobsters, tons.	Lobsters, cans.	Fish Oil, galls.	Fish Guano, tons.	Fish used as bait, brls.	Fish used as ma- nure, brls.
<i>Northumberland Co.</i>																									
Neguae and Ta- busintac.....	2	200	200	200	1300	40	2400	5000	2000	272000	180	100	50200	1100	2000	1000	1000	2000	50200	135920	1100	250	2000	1000	67,337 00
Bay du Vin, &c.....	1	400	350	100	6000	150	1500	5000	20000	391800	30	12000	135920	520	3000	2000	2000	3000	135959 80		520	250	3000	2000	135,959 80
Chatham, &c.....	1	100	100	100	150	150	2500	20000	100000	820000	20	1200		200	300	1000	1000	300	99,955 00		200		1000	1000	99,955 00
South-west Mira- michi.....						25	1410																		14,852 00
North-west Mira- michi.....						85	7200									60									13,264 00
Totals.....	4	700	650	100	7300	450	15010	255000	122000	1483800	290	13330	186120	1820	5300	4000	4000	5300			1820	250	5300	4000	331,367 80
<i>Kent Co.</i>																									
Hartcourt, &c.....		2000	2500	1500	1200		10000		3000	386000	150	100		1000				2000		308200			2000	1000	1,000 00
St. Louis, &c.....	4	100	2000	6000	1200	25	3000	5200	4000	713000	2000	150	540	1600	1600	440	440	2440		315000			2000	1000	180,703 00
Richibucto, &c.....	13	3150	6000	1200	2450	20	4350	4150	6200	390000	70	2500	250000	1000	3500	3500	3500	3500		143,265 00			3500	1000	143,265 00
Buctouche, &c.....		100	450	400	200	15	4500	2000	4000	93500		160	500	24000				2500		24000			2500		71,403 00
Cocagne.....		150	150	120	500		2000	2100	6000																588,657 00
Totals.....	17	200	5750	9050	3020	4250	60	13850	23450	1582560	530	3640	1117200	3800	10440	1440	1440	10440					10440	1440	



## NEW BRUNSWICK—District No. 2—Continued.

Return showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &amp;c.—Continued.

District.	VESSELS AND BOATS EMPLOYED IN FISHING.					FISHING MATERIAL.						KINDS OF FISH.											
	Vessels.			Boats.		Nets.		Weirs.		Smelt Nets.		Lobster Traps.		Salmon, fresh in ice, lbs.	Salmon, smoked, lbs.	Salmon, in cans, lbs.	Mackerel, brls.	Mackerel in cans.	Herring, brls.	Herring, smoked, lbs.	Alewives, brls.	Cod, cwt.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Fathoms.	Value.	No.	Value.	No.	Value.	No.										Value.
Westmoreland Co.			\$				\$		%														
Shediac and Botsford	1	34	800	5	750	12000	1550	14000	7000	150	3000	45000	40000	800	...	...	300	2000	11000	...	300	100	
Westmoreland and Sackville	...	...	...	...	26	1210	47	4285	1700	29	580	...	...	1000	...	...	50	...	2500	8000	450	50	
Dorchester, &c.	...	...	...	...	29	1740	58	7450	2790	...	...	...	...	1200	...	...	...	...	...	...	...	...	
Totals	1	60	800	5	805	14950	1655	25735	11490	179	3580	45000	40000	3000	...	...	350	2000	13500	8000	750	150	
Grand totals...	60	988	45900	215	3331	168952	8051	277652	181476	*26000 +30,3000	1371	45635	152430	142280	1142605	1450	23440	18430	128810	77180	153000	9902	63470

\* Mackerel traps. + Weirs.

**NEW BRUNSWICK—District No. 2—Continued.**  
**Return showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c.—Continued.**

District.	KINDS OF FISH.															FISH PRODUCTS.					VALUE.	\$	cts.						
	Cod Tongues and Sounds, brls.	Pollack, cwt.	Hake, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Hallbut, lbs.	Shad, brls.	Bass, lbs.	Trout, lbs.	Frost fish, lbs.	Squid, brls.	Flounders, lbs.	Smelts, lbs.	Pickarel, lbs.	Perch, lbs.	Eels, brls.	Oysters, brls.	Lobsters, tons.	Lobsters, cans.	Fish Oil, galls.				Fish Guano, tons.	Fish used as bait, brls.	Fish used as ma- nure, brls.			
Westmoreland Co.																													
Shediac and Bots- ford.	.....	.....	.....	.....	.....	.....	.....	3200	1000	6000	40	5000	410000	.....	.....	200	100	200	920000	.....	500	.....	7000	1000	227,602	00			
Westmoreland and Sackville.	.....	.....	50	.....	.....	.....	.....	3000	1000	2500	.....	.....	88400	.....	.....	40	.....	.....	.....	.....	100	.....	2000	100	27,625	00			
Dorchester, &c.	.....	.....	.....	.....	.....	.....	.....	785	800	.....	.....	.....	.....	.....	.....	20	.....	.....	.....	.....	100	.....	.....	.....	8,778	00			
Totals	.....	.....	50	.....	.....	.....	.....	6200	2800	8500	40	5000	498400	.....	.....	260	100	200	920000	.....	700	.....	9000	1100	264,005	00			
Grand totals.	94	200	13260	17330	5650	138350	1845	54670	64760	201200	76	190000	3908460	8000	2400	1280	17840	205	3202880	30420	290	48490	26740	2,147,782	60				

## RECAPITULATION

Of the Yield and Value of the Fisheries in District No. 2, New Brunswick,  
for the year 1892.

Kinds of Fish.	Quantity.	Price.		Value.	
		\$	cts.	\$	cts.
Salmon, salted..... Brls.	58	16	00	928	00
“ fresh..... Lbs.	1,142,605	0	20	228,521	00
“ smoked..... “	1,450	0	20	290	00
“ in cans..... “	23,440	0	15	3,516	00
Mackerel..... Brls.	18,430	14	00	258,020	00
“ in cans..... Lbs.	128,810	0	12	15,457	20
Herring..... Brls.	77,180	4	50	347,310	00
“ smoked..... Lbs.	153,000	0	02	3,060	00
Alewives..... Brls.	9,902	4	50	44,559	00
Cod..... Cwt.	63,470	4	50	285,615	00
“ tongues and sounds..... Brls.	94	10	00	940	00
Pollock..... Cwt.	200	3	00	600	00
Hake..... “	13,260	3	00	39,780	00
“ sounds..... Lbs.	17,330	0	50	8,665	00
Haddock..... Cwt.	5,650	3	50	19,775	00
Halibut..... Lbs.	138,350	0	10	13,835	00
Shad..... Brls.	1,845	10	00	18,450	00
Bass..... Lbs.	54,670	0	06	3,280	20
Trout..... “	64,760	0	10	6,476	00
Frost fish..... “	291,200	0	05	14,560	00
Squid..... Brls.	76	4	00	304	00
Flounders..... Lbs.	190,000	0	05	9,500	00
Smelts..... “	3,908,460	0	05	195,423	00
Pickarel..... “	8,000	0	05	400	00
Perch..... “	2,400	0	03	72	00
Eels..... Brls.	1,280	10	00	12,800	00
Oysters..... “	17,840	3	00	53,520	00
Lobsters..... Tons.	205	40	00	8,200	00
“..... Cans.	3,202,880	0	14	448,403	20
Fish oil..... Galls.	30,420	0	40	12,168	00
“ guano..... Tons.	290	25	00	7,250	00
“ as bait..... Brls.	48,490	1	50	72,735	00
“ as manure..... “	26,740	0	50	13,370	00
Total.....				2,147,782	60

NUMBER and Value of Vessels, Boats, Nets, Weirs, Traps, &c., engaged in the Fisheries in District No. 2, **New Brunswick**, in the year 1892.

Material.	Value.	Total.
	\$ cts.	\$ cts.
60 vessels (aggregate tonnage, 988).....	45,900 00	
3,931 boats .....	168,952 00	
277,652 fathoms nets.....	181,476 00	
30 weirs.....	3,000 00	
1,371 smelt nets .....	45,635 00	
152,430 lobster traps .....	142,280 00	
2 mackerel traps .....	6,000 00	593,243 00
8 salmon and mackerel canneries .....	4,000 00	
185 lobster factories.. .....	178,500 00	
40 freezers. ....	42,000 00	
85 ice houses.....	16,500 00	
10 smoke houses and fixtures.. ..	2,000 00	
5 oil presses and fixtures.....	500 00	
172 trawls. ....	3,500 00	247,000 00
Total .....		840,243 00



## NEW BRUNSWICK—District No. 3.

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, and the Total Number of Men employed, &c., in District No. 3, of the Province of New Brunswick, for the Year 1892.

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.				FISHING MATERIAL.				KINDS OF FISH.						
	Vessels.		Boats.		Nets.		Weirs.		Lobster Traps.	Salmon, fresh, in ice, lbs.	Herring, barrels.	Herring, smoked, bladders, lbs.	Alewives, barrels.		
	No.	Tonnage.	Value.	Men.	No.	Value.	No.	Value.							
Albert County	2	20	220	9	251	3510	502	19763	6706	3	200	2000	800	1603	
Queen's	2	24	240	8	121	949	180	3700	2010			1900	1900	1724	
Sunbury					60	700	80	300	300			5000	5000		
Victoria					100	2000	200	3750	1500			11500	11500		
York	18	357	7000	76	258	10320	530	76800	57600	28	8400	4000	129480	6000	
St. John and vicinity					1	20	3	60	20	1	40	25	97500	25	
St. Martin's and vicinity					101	3030	405	3490	1318			13860		1729	
Pisarnico					81	810	91	3490	1318					12	
Westfield					10	150	23	554						35	
Kennebecasis					20	117	141	4624	1344						
Belleisle															
Totals	22	401	7460	93	1003	21606	2155	112487	70798	32	8600	4040	3025262040	2425325000	11103

## NEW BRUNSWICK—District No. 3—Continued.

Return showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &amp;c.—Continued.

DISTRICT.	KINDS OF FISH.													FISH PRODUCTS.					VALUE.
	Cod, cwt.	Cod Tongues and Sounds, barrels.	Pollack, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Bass, lbs.	Trout, lbs.	Pickarel, lbs.	Perch, lbs.	Eels, barrels.	Lobsters, tons.	Fish Oil, gallons.	Fish Roes, barrels.	Fish Guano, tons.	Fish used as bait, barrels.	Fish used as manure, barrels.	
Albert County	.....	.....	.....	.....	.....	.....	15	.....	500	.....	4500	.....	.....	.....	.....	.....	.....	.....	600 00
Queen's	.....	.....	.....	.....	.....	.....	853	.....	1500	54000	.....	.....	.....	.....	.....	.....	.....	.....	18,888 50
Sunbury	.....	.....	.....	.....	.....	.....	233	1200	400	28500	6000	.....	.....	.....	.....	.....	.....	.....	12,185 00
Victoria	.....	.....	.....	.....	.....	.....	50	.....	20000	.....	3000	10	.....	.....	.....	.....	.....	.....	3,690 00
York	.....	.....	.....	.....	.....	.....	165	.....	9500	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,900 00
St. John and vicinity	600	12	250	.....	1250	380	2500	.....	1600	.....	.....	80	120	100	.....	800	.....	.....	109,219 00
St. Martin's and vicinity	25	15	.....	.....	.....	.....	720	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	550 00
Pisarnco	.....	.....	.....	.....	.....	.....	100	.....	1000	22000	.....	564	.....	.....	.....	.....	.....	.....	28,950 00
Westfield	.....	.....	40	.....	.....	.....	34	.....	500	2000	400	.....	.....	.....	.....	.....	.....	.....	12,872 50
Kennebecasis	.....	.....	.....	.....	.....	.....	3	.....	.....	1500	.....	.....	.....	.....	.....	.....	.....	.....	556 00
Belleisle	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	262 50
Totals	625	12	265	40	1250	380	4673	1200	35000	108000	13900	90	1794	100	.....	.....	800	.....	192,673 50
Total value of catch. ....																			

## RECAPITULATION

Of Yield and Value of the Fisheries in District No. 3, New Brunswick.

Kinds of Fish.	Quantity.	Price.		Value.	
		\$	cts.	\$	cts.
Salmon, fresh, in ice.....	Lbs. 262,040	0	20	52,408	00
Herring, salt.....	Brls. 2,425	4	50	10,912	50
“ smoked (bloaters).....	Lbs. 325,000	0	02	6,500	00
Alewives.....	Brls. 11,103	4	50	49,963	50
Cod.....	Cwt. 625	4	50	2,812	50
“ tongues and sounds.....	Brls. 12	10	00	120	00
Pollack.....	Cwt. 265	3	00	795	00
Hake.....	“ 40	3	00	120	00
Haddock.....	“ 1,250	3	50	4,375	00
Halibut.....	Lbs. 380	0	10	38	00
Shad.....	Brls. 4,673	10	00	46,730	00
Bass.....	Lbs. 1,200	0	06	72	00
Trout.....	“ 35,000	0	10	3,500	00
Pickarel.....	“ 108,000	0	05	5,400	00
Perch.....	“ 13,900	0	03	417	00
Eels.....	Brls. 90	10	00	900	00
Lobsters.....	Tons. 179½	40	00	7,170	00
Fish oil.....	Galls. 100	0	40	40	00
Fish used as bait.....	Brls. 800	0	50	400	00
Total value of catch, 1892.....				192,673	50
“ “ 1891.....				215,681	04
Decrease.....				23,007	54

NUMBER and Value of Vessels, Boats, Nets, Weirs, &amp;c., engaged in the Fisheries of District No. 3, New Brunswick.

Material.	Value.	Total.
	\$ cts.	\$ cts.
22 vessels (401 tons).....	7,460 00	111,489 00
1,003 boats.....	21,606 00	
112,487 fathoms of nets.....	70,798 00	
32 weirs.....	8,600 00	
4,040 lobster traps.....	3,025 00	
5 ice houses.....	1,000 00	20,380 00
30 smoke houses and fixtures.....	6,000 00	
12 fish “ “.....	12,000 00	
6 oil presses and fixtures.....	600 00	
30 trawls.....	600 00	
3 weir seines.....	180 00	
Total value of materials.....		131,869 00

RECAPITULATION showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries; Quantity and Value of Fishing Material; Kinds and Quantities of Fish and the Total Number of Men Employed, &c., in the whole Province of New Brunswick, for the year 1892.

COUNTIES.	Vessels and Boats employed in Fishing.					Fishing Material.					Kinds of Fish.		
	Vessels.		Boats.			Nets.		Weirs.		Smelt Nets.		Lobster Traps.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	No.	Value.	No.	Value.	No.	Value.
Restigouche.....	45	592	31,900	158	130	2,200	136	22,660	22,660	5	100	3,800	3,000
Gloucester.....	10	295	10,400	42	1,613	109,637	3,437	99,796	54,925	185	5,435	51,130	46,780
Northumberland.....	4	67	2,800	10	885	29,910	1,833	52,850	24,410	30	3,000	10,050	10,050
Kent.....	1	34	800	5	805	14,950	1,655	25,735	11,490	179	3,580	42,450	42,450
Westmoreland.....												45,000	40,000
Albert.....													
St. John.....	18	357	7,000	76	360	13,370	938	76,860	57,620	8	200	4,040	3,025
King's.....					111	1,077	255	8,114	2,662				
Queen's.....	2	20	220	9	251	3,510	502	19,763	6,706				
Sunbury.....	2	24	240	8	121	949	180	3,700	2,010				
York.....					100	2,000	200	3,750	1,500				
Victoria.....					60	700	80	300	300				
Charlotte.....	60	966	24,150	271	1,003	63,821	1,480	51,944	20,232	251	96,100	15,552	12,937
Totals.....	142	2,355	77,510	579	5,937	254,379	11,686	442,083	272,506	313	107,700	172,022	158,242
												58	1,405,170
													1,450

\* Mackerel traps.





RECAPITULATION showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c.—*Continued.*

COUNTIES.	Kinds of Fish.										Fish Products.				Value.			
	Frost fish.	Squid.	Flounders.	Smelt.	Pickarel.	Perch.	Eels.	Sardines.	Oysters.	Lobsters.	Lobsters.	Cans.	Gals.	Tons.		Fish used as bait.	Fish used as manure.	
Restigouche.	Lbs.	Brls.	Lbs.	Lbs.	Lbs.	Lbs.	Brls.	Hhds.	Brls.	Tons.		Cans.	Gals.	Tons.	Brls.	Brls.	\$	cts.
Gloucester.	7,500	36	9,000	16,700	.....	400	200	.....	.....	5	.....	63,600	24,100	.....	400	1,000	51,032	00
Northumberland.	255,000	.....	122,000	327,000	.....	.....	290	.....	800	.....	.....	915,960	24,100	40	23,350	19,200	912,720	80
Kent.	20,200	.....	54,000	1,483,800	.....	2,000	530	.....	13,300	.....	.....	186,120	1,820	250	5,300	4,000	331,367	80
Westmoreland.	8,500	40	5,000	1,582,560	8,000	.....	260	.....	3,640	.....	.....	1,117,200	3,800	.....	10,440	1,440	588,657	00
Albert.	.....	.....	.....	498,400	.....	.....	.....	.....	100	200	.....	920,000	700	.....	9,000	1,100	264,005	00
St. John.	.....	.....	.....	.....	.....	.....	80	.....	.....	179½	.....	.....	100	.....	800	.....	600	00
King's.	.....	.....	.....	25,500	.....	400	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	138,719	00
Queen's.	.....	.....	.....	5,400	.....	4,500	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13,691	00
Sunbury.	.....	.....	.....	28,500	.....	6,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18,888	50
York.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,185	00
Victoria.	.....	.....	.....	.....	.....	3,000	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,900	00
Charlotte.	800	215	10,200	6,400	2,000	.....	.....	22,055	.....	748½	.....	1,440	50,377	61	9,250	17,507	3,690	00
Totals.	292,000	291	200,200	3,914,860	118,000	16,300	1,370	22,055	17,840	1,132½	.....	3,204,320	80,897	351	58,540	44,247	863,465	90
								£150,000									3,203,922	00

|| This amount includes \$82,936 for home consumption not itemized.

‡ Cans.

## RECAPITULATION

Of the Yield and Value of the Fisheries in the whole Province of **New Brunswick**,  
for the year 1892.

Kinds of Fish.		Prices.	Quantity.	Value.	Total Value.
		\$ cts.		\$ cts.	\$ cts.
Salmon, salted.....	Brls.	16 00	58	928 00	
“ fresh.....	Lbs.	0 20	1,405,170	281,034 00	
“ smoked.....	“	0 20	1,450	290 00	
“ in cans.....	“	0 15	23,440	3,516 00	
Mackerel, salted.....	Brls.	14 00	18,725	262,150 00	285,768 00
“ in cans.....	Lbs.	0 12	128,810	16,457 20	
Herring, salted.....	Brls.	4 50	95,040	427,680 00	277,607 20
“ smoked.....	Lbs.	0 02	14,641,000	292,820 00	
“ frozen fresh.....	No.		440,000	3,300 00	
Alewives.....	Brls.	4 50	21,155		723,800 00
Cod, dried.....	Cwt.	4 50	74,547	335,461 50	95,197 50
“ tongues and sounds.....	Brls.	10 00	109	1,090 00	
Pollock.....	Cwt.	3 00	16,279		336,551 50
Haddock.....	“	3 50	16,433		48,837 00
Hake.....	“	3 00	37,615	112,845 00	57,515 50
“ sounds.....	Lbs.	0 50	41,615	20,807 50	
Halibut.....	“	0 10	385,530		133,652 50
Shad.....	Brls.	10 00	6,518		38,553 00
Bass.....	Lbs.	0 06	55,870		65,180 00
Trout.....	“	0 10	109,760		3,352 20
Frost fish.....	“	0 05	292,000		10,976 00
Squid.....	Brls.	4 00	291		14,600 00
Smelts.....	Lbs.	0 05	200,200		1,164 00
Flounders.....	“	0 05	3,914,860		195,743 00
Pickarel.....	“	0 05	200,200		10,010 00
Perch.....	“	0 05	118,000		5,900 00
Eels.....	“	0 03	16,300		489 00
Oysters.....	Brls.	10 00	1,370		13,700 00
Clams.....	“	3 00	17,840		53,520 00
“.....	“	6 00	1,200	7,200 00	
“.....	Cans.	0 05	30,000	1,500 00	
Sardines.....	Hhds.	4 50	22,055	99,247 50	8,700 00
“.....	Cans.	0 04	150,000	6,000 00	
Lobsters.....	Cans.	0 14	3,204,320	448,604 80	105,247 50
“.....	Tons.	40 00	1,132½	45,300 00	
Fish oil.....	Galls.	0 40	80,897		493,904 80
“ as bait.....	Brls.		58,540		32,358 80
“ as manure.....	“	0 50	44,247		77,760 00
“ guano.....	Tons.	25 00	351		22,123 50
Fish for local consumption not included above.....					8,775 00
Total for 1892.....					82,936 00
“ 1891.....					3,203,922 00
Decrease.....					3,571,050 70
					367,128 70

## TABLE

SHOWING the Value of Vessels, Boats, Nets, &c., engaged in the Fisheries of **New Brunswick**, with approximate value of other Fishing Material for 1892.

Articles.	Value.	Total Value.
	\$ cts.	\$ cts.
142 vessels, 2,355 tons .....	77,510 00	
5,937 boats .....	254,379 00	
442,083 fathoms of nets .....	272,506 00	
313 weirs .....	107,700 00	
1,371 smelt nets .....	45,635 00	
		757,730 00
172,022 lobster traps .....	158,242 00	
185 " canneries .....	178,500 00	
		336,742 00
8 salmon canneries .....	4,000 00	
2 sardines and clam canneries .....	3,500 00	
274 seines .....	16,625 00	
1,008 trawls .....	19,158 00	
2 mackerel traps .....	6,000 00	
40 freezers .....	42,000 00	
92 ice-houses .....	17,900 00	
542 smoke houses with fixtures .....	93,900 00	
425 fish houses .....	59,600 00	
127 oil presses .....	6,495 00	
1 fertilizer factory .....	40,000 00	
		309,178 00
Total .....		1,403,650 00

STATEMENT of men engaged fishing in **New Brunswick**, 1892.

Men in vessels .....	579
" boats .....	11,686
Total .....	12,265



## APPENDIX C.

## PRINCE EDWARD ISLAND.

REPORT ON THE FISHERIES OF PRINCE EDWARD ISLAND FOR 1892,  
BY INSPECTOR EDWARD HACKETT.

TIGNISH, P.E.I., 31st December, 1892.

Hon. CHARLES H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit herewith a report on the fisheries of the Province of Prince Edward Island, for the year 1892. The product of the fisheries of this province for the season just closed, amounts to the sum of \$1,179,856.68, being a decrease as compared with the year 1891 of \$58,877.13, as follows:—

Yield of fisheries, 1891. ....	\$1,238,733 81
“ “ 1892. ....	1,179,856 68
Decrease. ....	\$ 58,877 13

This decrease is caused by the falling off in the catch of lobsters, the pack being 850,842 one-pound cans less than last year. Although the product for the year has fallen in value slightly below 1891, it still stands above the average, and may be classed as a fairly successful season. The winter of 1892 being very mild, the ice left the shores early, and fishing for lobsters commenced about the 1st of May. Great preparations had been made for this fishery, but the results were not so satisfactory as in 1891.

Herring were more abundant than in the previous year, and fishermen experienced no difficulty in providing an ample supply of bait for the lobster and mackerel fisheries.

Mackerel were plentiful on some parts of the coast, and the catch shows an increase of 4,414 barrels over 1891.

Codfishing was not prosecuted with energy, but shows a slight increase over 1891.

Oysters show a decrease of about 8,000 barrels. This fishery was vigorously prosecuted, and owing to the high prices realized proved remunerative to those engaged in it.

The following details show more fully the condition of the different branches of the fisheries in this district.

## LOBSTERS.

This valuable crustacean shows a large decrease as compared with the year 1891.

The season opened early, with lobsters fairly plentiful, but high winds and stormy weather in the month of May interfered to a great extent with the successful prosecution of the fishery.

Seventy more factories were in operation than in 1891, and the number of traps was increased from 138,000 in 1891 to 214,000 in 1892. The production per trap was about equal to 13½ one-pound cans in 1892, as against 26½ one-pound cans per trap in 1891. The new regulations under which the factories on a portion of the coast closed 1st July, had a certain effect in curtailing the catch, but as most of those factories close about that date every year the result was scarcely noticeable.

Lobsters, while continuing to be fairly plentiful, are diminishing in size, and I regret having to state that some factories were kept running all through the month of

June on fish under nine inches in length. The condition of this fishery is not satisfactory, as the large increase in the number of traps has to a great extent neutralized the benefits resulting from the shortened season.

#### HERRING.

There is a considerable increase in the catch of herring. This fish is not cured for export, being chiefly used as bait in the lobster and mackerel fisheries, with a small quantity entering into home consumption as food. Large schools of herring strike the coast when the ice leaves, and are taken in large quantities where the fishermen are prepared to capture them.

Last season they were very abundant on the south side of the island in the vicinity of Georgetown, thus affording the fishermen in that neighbourhood an ample supply of bait. Several fishing vessels from Nova Scotia and the United States bound for the banks cod-fishing, also procured a supply of bait at Georgetown last spring, amounting in the aggregate to several hundreds of barrels, of which no account is given in the returns. As herring strike this place early in the season, and the harbour is generally open, bankers from the provinces of Canada as well as from the neighbouring States can procure supplies of bait and ice in sufficient quantity and at small cost each spring, thus enabling them to successfully prosecute the cod-fishing.

At the northern part of the island the schools were not so heavy, but a sufficient quantity for bait was secured in the early part of the season. Schools of large fat herring visit the coast in the fall months, but as the men are then engaged in the mackerel fishery, which is supposed to be more lucrative, very little attention is paid to them.

#### CODFISH.

Cod shows a slight increase over 1891. This fishery is not actively prosecuted by Island fishermen, and but little change takes place from year to year. It is capable, however, of great development, as cod abounds in all the coastal waters of the province.

Large quantities are taken each year in the vicinity of North Point, Prince County, by small vessels and large boats from the county of Gloucester, New Brunswick. Those craft remain on the coast until late in the season, and generally make very successful trips. It is to be regretted that local fishermen pay so little attention to this most valuable fishery.

#### MACKEREL.

The mackerel fishery shows an increase of 4,414 barrels for the year. The fish entered the gulf early and remained inshore on some parts of the coast until late in the season. The best catches by hook and line fishermen were made in the northern part of Prince county, on the coast extending from Tignish to Egmont Bay. Seining was not extensively carried on, as the fish did not school up, outside the three-mile limit. A noticeable feature of this fishery is the smallness of the catch on the north side of the island, from East Point to Malpeque. This section, known as the "bight of the island" was until recently the most famous mackerel fishing ground within the Gulf of St. Lawrence.

Of late years, however, the fish have almost completely deserted it, and the industry has ceased to pay those engaged in it. Fishermen attribute the falling off to the excessive use of gill-nets and purse-seines in this locality.

Their contention is strengthened by the circumstance that mackerel in almost their usual abundance are found in the vicinity of North Cape, in Prince County, where owing to various reasons net fishing had not been prosecuted to the same extent as on the part of coast referred to. For many years quite a number of small vessels from Nova Scotia were engaged in fishing for codfish on the small banks in the coastal waters of this province. Those vessels made headquarters at St. Peter's, Tracadie, Rustico and other small harbours from East Point to Malpeque. In order to successfully prosecute the cod-fishery each vessel was provided with a large fleet of mackerel nets which were set inshore for the purpose of obtaining bait.

These nets were left in the water day and night, and when supplemented by those of the local fishermen, formed a complete barrier of twine along the coast, thus preventing the mackerel reaching their inshore feeding grounds.

This, doubtless, had the effect of driving the fish from their old haunts, and compelling them to seek other waters where nets did not bar them from the shore, and where they could obtain their favourite food. The regulations respecting the use of purse-seines and gill-nets are favourably received by all interested, and will no doubt prove of great benefit to the fishery.

#### OYSTERS.

Oysters show a decrease of about 8,000 barrels. Owing to windy weather in September, the catch was not so large the first part of the season as in 1891. This had the effect, however, of raising prices later in the year, and the men engaged in the industry were well satisfied with the result of the season's operations. Richmond Bay is the best oyster ground in the province, and although continuously and incessantly raked, still produces large quantities of this excellent bivalve. The bottom of this bay appears to be covered with oysters, and the men are each year discovering large and productive beds, which they assert have never before been worked upon.

In this way new ground is being opened up, and the danger of exhaustion by over-fishing is not so great as in the smaller bays and rivers. The number of boats and men employed is, however, increasing from year to year, while the output remains about the same.

This would indicate that the supply is kept down to a very low point, and unless nature is assisted in some way may ultimately fail.

The small shallow streams have certainly suffered from over fishing, and in many of them the industry has ceased to be remunerative. The mud diggers have been largely used in the vicinity of living beds, and have without doubt caused great injury to the growing oysters. Another practice that should be prevented is the landing of young oysters by the fishermen during the season. These immature oysters being too small for export, are rejected by the buyers and thrown out to rot.

Hundreds of barrels are wasted and destroyed in this way each season, which, if returned to the beds, would mean thousands of barrels of the best oysters another year.

Stringent regulations prohibiting the use of mud-digging machines within a certain well-defined distance of a living oyster bed, and compelling fishermen to return all small oysters to the water, should be adopted by the department with as little delay as possible.

#### SALMON.

Clean salmon do not frequent the streams of this district, and consequently are not fished for to any extent. The small quantity appearing in the returns being taken by fishermen with nets on the outside coast, near St. Peter's Bay, in King's county.

During the spawning season they ascend some of the rivers in considerable numbers, especially the Dunk, Winter, West and Morell Rivers, in all of which they were reported as being very plentiful last fall.

#### TROUT.

A decrease of about 5,000 lbs. for the year is shown in trout. No record is kept of the catch of this fish, and it is extremely difficult to obtain an accurate return. None are exported, and as the catch is altogether made by sportsmen, who keep no account of the quantity caught, the returns are liable to fluctuate, while the take may be about the same each year.

#### HAKE.

This fishery shows an increase of 15,031 cwts., as compared with 1892. The catch was chiefly made on the south side of King's county, where this fishery was actively prosecuted. With large and suitable boats, this fishery might be carried on very extensively in the coastal waters of the province, as an abundance of hake is to be found at almost all points around the shore.



## MINOR FISHERIES.

Halibut, haddock, eels, smelts, &c., show no great change from former years. The halibut and haddock fisheries are not prosecuted as separate industries, the quantities appearing in the returns being taken in connection with the cod and hake fisheries.

Eels and smelts are exported to the United States markets fresh, and the successful prosecution of the fisheries depends largely on the state of the markets, and the kind of weather prevailing.

The winter of 1892 being unusually mild, was not suitable for the export of fresh fish, and consequently the catch shows a considerable falling off. With suitable conditions prevailing, however, the industry is capable of great expansion, as both eels and smelts are plentiful.

## GENERALLY.

The season just closed has been a fairly prosperous one, and only for the great falling off in the catch of lobsters, would be the most successful for many years. All branches of the fisheries have yielded fair returns, and the hardy and active fisherman has reaped an average harvest as a reward for his toil and labour.

The efforts of the department to protect our valuable sea-coast and inland fisheries are fully appreciated by all interested, and it is hoped will result in perpetuating this important industry.

I have the honour to be, sir,

Your obedient servant,

EDWARD HACKETT,

*Inspector of Fisheries.*



RETURNS showing Number, Tonnage, Value of Vessels and Boats, Number of Men, Women and Boys, Number of Seines, Nets, Lobster Traps and Lobster Factories, Fathoms of Nets, Manilla and other Fishing Material in use in the Province of **Prince Edward Island**, Season 1892.

AS PER GUARDIANS' RETURNS.	VESSELS.										BOATS.			NETS.			SEINES.			WEIRS.			LOBSTER PLANT.						VALUE.		
																				TRAPS.			MANILLA.		FAC-TORIES.		LABOUR.				
	No.	Tons.	Value.	Men.	No.	Value.	No.	Value.	Fathoms.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.	Men.	Women.	Boys.						
<i>Districts—Prince County.</i>																															
Narrows <i>via</i> North Cape to Cape Gage.	7	281	6100	59	212	8480	640	11815	5900	72100	1	750	30820	10987	221904	9320	28	15150	400	142	85	58787	00								
Cape Gage to West Point.	4	141	2530	31	65	2730	226	3700	1290	41200	4	1200	18480	6468	133200	5594	19	25300	198	96	74	45112	00								
West Point to Higgins Wharf.	1	20	300	3	51	2040	102	1020	306	1300	1	300	7300	2555	52560	2207	4	10720	80	41	12	17828	00								
Higgins Wharf to Lot 17 line.	2	140	2000	14	20	600	60	2000	1000	2600	2	600	19750	6912	142200	5972	24	33500	249	172	23	54274	00								
Indian Head to Carleton Point					31	1616	66	1075	260				3600	1260	25920	1080	3	9000	34	11	11	13540	00								
Carleton Point to Queen's County line.	1	29	800	3	10	400	20	1000	200	1300	1	300	6900	2415	49680	2070	9	11100	66	20	20	17461	00								
Narrows to Oyster Point.					14	915	38	1061	374				9600	3360	69120	2880	12	13000	136	45	18	20940	00								
Richmond Bay and Malpeque.					350	8750	700						3775	1321	27180	1132	6	4700	43	15	10	8442	00								
Mill and Lot 10 Rivers.	1	11	300	3	5	300	15	1500	480				2047	716	14760	650	5	4350	39	7	10	14406	00								
Grand River.					1	350	5	700	250													1080	00								
Indian and other Rivers.	1	18	600	4	14	700	54			1300	1	300										600	00								
																						1600	00								
<i>Districts—Queen's County.</i>																															
Prince County Line to Black Point.					8	300	16	550	200				4550	1592	32760	1365	5	7200	22	12	9	10657	00								
Lot 65 and St. Peter's Island.					92	4050	250	690	160				28725	10053	206820	8617	16	24150	272	98	19	47080	00								
Battery Point to Vernon River.					7	105	14	160	36				2110	738	15120	630	6	2420	40	9	7	3929	00								
Vernon River to King's County line.					95	3000	220	4000	750				14390	5037	103680	4320	20	11350	179	74	18	24457	00								
Charlottetown and rivers.					5	75	10															75	00								
West River and tributaries					30	600	49	200	150				2300	805	16560	690	3	3120	32	18	6	5365	00								
New London District.	2	52	1000	13	23	1150	60	3150	1570	3900	3	900	2400	840	17280	720	2	7500	38	12	7	13680	00								
North Rustico "	3	52	1560	14	45	3600	200	4000	1200	3900	3	900	4000	1400	28800	1200	2	5500	50	35	11	15360	00								
Grand Tracadie "					55	1375	140	5300	2655				4000	1400	28800	1200	4	5975	79	32		12605	00								
New Glasgow					12	300	34	150	65				4000	1400	28800	1200	4	5975	79	32		365	00								
Wheatly River.					4	430	16	80	24													434	00								
	5	104	2560	27	376	14985	1009	18280	6810	61800			62475	21805	449820	18742	58	67215	712	290	77	133977	00								

*Districts—King's County.*

Queen's County Line to Terras Point .....	10	300	6000	60	90	2700	270	4000	2400	.....	.....	.....	20000	7000	144000	6000	18	28350	208	97	85	52450	00
Terras Point to Matland Point.....	8	285	5600	53	60	2500	250	2500	2000	.....	.....	.....	4500	1575	32400	1350	3	6900	39	22	7	19925	00
Matland Point to Rollo Point.....	.....	.....	.....	.....	150	4500	300	18000	3600	.....	.....	.....	7700	2695	55440	2210	6	17500	138	50	17	30505	00
Rollo Point to Diligent Pond.....	.....	.....	.....	.....	125	3000	250	10000	3000	.....	.....	.....	4400	1540	32300	1345	4	6000	90	30	10	14885	00
Diligent Pond to Big Pond.....	.....	.....	.....	.....	80	1600	240	3000	750	.....	.....	.....	4400	1540	31680	1320	4	6000	86	34	17	11210	00
Big Pond to Oer's Point.....	.....	.....	.....	.....	60	1500	180	3600	600	.....	.....	.....	3350	1382	28440	1185	4	4000	54	20	20	8667	00
Oer's Point to Queen's County line.....	.....	.....	.....	.....	65	2540	170	7480	3740	.....	.....	.....	4150	1452	29880	1245	5	6000	51	34	17	14977	00
Noville and other Rivers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	18	585	11600	113	630	18340	1660	48580	16090	.....	.....	.....	49100	17184	354140	14655	44	74750	666	287	173	152619	00

## RECAPITULATION.

Totals—Prince County.....	17	640	12630	117	853	30081	2094	28052	12150	16	4800	1	750	102272	35094	736524	30905	110	126820	1245	549	263	254130	00
“ Queen's “ .....	5	104	2560	27	576	14985	1009	18280	6810	6	1800	.....	.....	62475	21865	449820	18742	58	67215	712	290	77	133977	00
“ King's “ .....	18	585	11600	113	630	18340	1660	48580	16090	.....	.....	.....	.....	49100	17184	354140	14655	44	74750	666	287	173	152619	00
	40	1329	26790	257	1859	63406	4763	94912	35050	22	6600	1	750	213847	75043	1540484	64302	212	268785	1623	1126	513	540726	00

RETURNS showing Kinds and Quantities of Fish caught, and their Values, in the Province of Prince Edward Island, Season 1892.

As Per GUARDIANS' RETURNS.	Value.																			
	Salmon, per barrel.	Salmon, fresh.	Mackerel, per barrel.	Mackerel, in cans.	Herring, per barrel.	Alewives, per barrel.	Codfish, per cwt.	Hake and Cod Tongue and Sounds, per lb.	Hake, per cwt.	Haddock, per cwt.	Halibut, per lb.	Trout, per lb.	Smelts, per lb.	Eels, per barrel.	Oysters, per barrel.	Lobsters, in cans.	Fish Oil, per gall.	Fish Guano, per ton.	Fish used as bait.	
<i>Districts—Prince County.</i>																				
Narrows, <i>via</i> North Cape to Cape Gage	...	...	7074	1920	6660	55	1750	4206	1134	2400	1500	2000	24000	145	215	520672	3884	500	2400	238046 58
Cape Gage to West Point	...	...	5700	...	...	...	90	...	100	...	...	1000	1000	4	...	226416	100	550	2000	120933 24
West Point to Higgins' Wharf	...	...	903	...	146	12	...	...	...	...	...	2400	8500	5	410	105600	...	65	800	31932 00
Higgins' Wharf to Lot 17 line	...	...	450	...	1955	...	...	...	...	...	...	...	...	...	...	301056	...	...	3400	62345 34
Lot 17 and Bedeque Bay	...	...	25	...	...	...	...	...	...	...	...	11000	25000	35	500	24000	...	...	600	8810 00
Indian Head to Carleton Point	...	...	50	2000	880	10	500	...	600	...	...	2000	8000	...	...	80208	...	3000	600	19689 12
Carleton Point to Queen's County line	...	...	74	...	752	...	450	...	...	...	100	4000	4000	15	2400	43200	...	200	600	23348 44
Narrows to Oyster Point	...	...	150	...	100	...	...	...	...	...	...	2000	24000	70	300	20900	...	800	...	21253 00
Richmond Bay and Malpeque	...	...	...	...	500	...	70	...	...	...	...	...	4800	60	3800	...	...	...	...	65250 00
Mill and Lot 10 Rivers	...	...	3	...	600	...	450	...	...	250	...	200	11000	94	2453	44496	300	50	300	15432 00
Grand River	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Indian and other rivers	...	...	14479	3920	11593	77	3510	4206	1834	2650	1600	21500	110300	428	30978	146574	4284	1365	13900	634823 16
<i>Districts—Queen's County.</i>																				
Prince County Line to Black Point	...	...	50	...	100	...	1000	...	...	...	...	1000	5000	5	...	34848	...	60	250	11903 72
Lot 65 and St. Peter's Island	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	238416	...	210	103	35977 74
Battery Point to and at Vernon River	...	...	2	...	4	...	...	...	...	...	...	500	100	...	115	500	...	...	148	6768 92
Vernon River, <i>via</i> Point Prince to King's Co.	...	...	20	3600	50	...	50	200	75	1000	...	700	500	4	4	158640	120	300	170	30646 60
Charlottetown and rivers	...	...	10	...	10	...	...	...	...	...	...	1000	4000	5	1175	...	...	...	...	4060 00
West River and tributaries	...	...	5	...	10	60	500	250	25	...	100	150	...	2	...	62400	...	40	200	9856 00
New London District	...	...	450	...	500	...	...	...	1960	400	...	...	1000	30	150	45936	200	...	400	18571 04
North Rustico	...	...	1825	...	500	...	1350	...	...	...	...	500	5000	200	15	53328	189	100	2500	53796 52
Grand Tracadie	...	...	380	...	297	50	1175	...	...	...	...	...	...	...	...	75888	580	...	1000	26870 32
New Glasgow	...	...	128	...	...	...	20	...	...	...	...	500	...	...	...	...	...	...	125	2119 50
Wheatly River	...	...	22	...	8	...	7	...	...	...	...	300	...	...	...	...	40	...	18	448 50
...	...	...	2892	3600	1479	110	4102	450	2060	1400	100	4650	15600	246	1959	704784	1129	710	4914	201018 86

*Districts—King's County.*

Queen's County Line to Terras Point.....	150	1000	8000	2000	12000	4500	.....	1000	4000	50	.....	224112	1500	1500	130875 68
Terras Point to Maitland Point.....	600	5000	200	200	150	.....	.....	.....	.....	.....	.....	60804	100	1000	42302 56
Maitland Point to Rollo Point.....	1500	200	600	600	2400	.....	.....	.....	60000	150	.....	112992	2500	2800	57818 88
Rollo Point to Dilligent Pond.....	250	200	1200	.....	5000	.....	.....	.....	.....	.....	.....	48960	600	1000	33394 40
Dilligent Pond to Big Pond.....	960	500	50	480	.....	.....	.....	6000	.....	.....	.....	80976	400	700	31221 64
Big Pond to Oer's Point.....	600	300	60	60	.....	50	.....	500	1000	.....	.....	54240	40	1000	19504 60
Oer's Point to Queen's County Line.....	9980	630	300	1250	.....	102	21	600	6000	20	.....	66960	850	850	29316 30
Moveille and other rivers.....	.....	.....	.....	.....	.....	.....	.....	800	.....	.....	.....	.....	.....	.....	80 00
	10 9980	7830	350	11790	2000	19652	4571	600	71000	220	.....	649044	5990	8850	344014 66

## RECAPITULATION.

Totals—Prince County.....	14479	3920	11593	77	3510	4206	1834	2650	1000	21500	110300	428	30978	1465744	4284	1365	13900	634823 16
“ Queen's “.....	2802	3600	1479	110	4102	450	2060	1400	100	4650	15600	246	1959	704784	1129	710	4914	201018 86
“ King's “.....	4530	.....	7830	350	11790	2000	19652	4571	600	8300	71000	220	.....	649044	5990	50	8850	344014 66
	10 9980	21901	20902	537	19402	6656	23546	8621	2500	34450	196900	894	32937	2819572	11403	2125	27664	1179856 68



## RECAPITULATION

YIELD and Value of the different Fisheries in the Province of **Prince Edward Island** during the year 1892.

Kinds of Fish.	Quantity.	Prices.	Value.	Total Value.
		\$ cts.	\$ cts.	\$ cts.
Salmon, salted..... Brls.	10	10 00	100 00	
“ Fresh..... Lbs.	9,980	0 10	998 00	1,098 00
Mackerel, salted..... Brls.	21,901	14 00	306,614 00	
“ in cans..... Lbs.	7,520	0 12	902 40	307,516 40
Herring..... Brls.	20,902	4 50		94,059 00
Alewives..... Brls.	537	4 50		2,416 50
Cod..... Cwt.	19,402	4 50	87,309 00	
Cod and hake tongue, &c..... Lbs.	6,656	0 50	3,328 00	90,637 00
Hake..... Cwt.	23,546	3 00		70,638 00
Haddock..... Cwt.	8,621	3 50		30,173 50
Halibut..... Lbs.	2,300	0 10		230 00
Trout..... Lbs.	34,450	0 10		3,445 00
Smelts..... Lbs.	196,900	0 05		9,845 00
Eels..... Brls.	894	10 00		8,940 00
Oysters..... Brls.	32,937	3 00		98,811 00
Lobsters..... Cans.	2,819,572	0 14		394,740 08
Fish oil..... Galls.	11,403	0 40		4,561 20
Fish as bait..... Brls.	27,664	1 50		41,496 00
“ guano..... Tons.	2,125	10 00		21,250 00
Total value for 1892.....				1,179,856 68
“ “ 1891.....				1,238,733 81
Decrease.....				58,877 13

## RECAPITULATION

SHOWING the Number and Value of Vessels, Boats, Nets, &c., engaged in the Fisheries of **Prince Edward Island** for 1892.

Articles.	Value.	Total.
	\$ cts.	\$ cts.
40 vessels, 1,329 tons.....	26,790 00	
1,859 boats.....	63,406 00	
94,912 fathoms of nets.....	35,050 00	
22 seines.....	6,600 00	
1 weir.....	750 00	132,596 00
212 lobster canneries.....	268,785 00	
213,847 lobster traps.....	75,043 00	
1,540,484 fathoms of rope.....	64,302 00	408,130 00
Total.....		540,726 00

## APPENDIX D.

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# QUEBEC.

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### REPORT OF THE FISHERY OFFICER IN CHARGE OF THE GOVERNMENT STEAMER "LA CANADIENNE," ENGAGED IN THE PROTECTION OF THE GULF OF ST. LAWRENCE FISHERIES FOR THE YEAR 1892.

OTTAWA, 31st December, 1892.

Hon. CHARLES H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to present the report of the fisheries of the Gulf Division, P.Q., for the year now closed, together with synopses of the reports of the local overseers, and the usual tables of statistics showing the catch and values of the fisheries for the above named division.

It will be seen by these tables that there is an increase in value, as compared with the returns for 1891, of \$309,847. This is made up mainly by the increase in the catch of cod, lobsters and mackerel. The season was not a rough one, and the fall being remarkably open, the cod and herring fisheries were carried on until well into the month of December. Fishing began early on the south shore, and promised well, but it slackened away during the early summer, and never thoroughly came to again, so that on the south coast in Gaspé and Bonaventure the fishery was really below the average. On the north shore and Labrador, however, fishing began early, and continued good throughout the season until late in the fall—so that by the abundance of the north shore fishery, we are enabled to report for the whole Gulf division one of the best yields of recent years.

#### SALMON.

The total yield of salmon amounts to 681,620 lbs., as compared with 638,077 lbs. in 1891. The fishing on the south shore was again poor, and owing to the small snowfall during the winter of 1891 and 1892, and the almost total absence of the usual spring freshets in May, the water in the rivers was low, and clear in June, so that it was only after heavy rains in June and July, that the fish ran in. For this reason both the net fishing and the early fly fishing were poor. On the north shore, however, I have again to report an abundant catch, the sea-coast nets in the Moisie and Godbout subdivisions having made a most successful fishery. No new net licenses for salmon have been issued for several years on the south coast, and during this time many old stations have been cancelled—this coupled with the fact that on several of the rivers the estuary nets have been bought out by the fly fishermen—that in many instances the length of bar net has been reduced, while the Sunday close time is everywhere strictly observed, would lead us to expect an improvement in the condition of the salmon rivers in the counties of Gaspé and Bonaventure. The Local Government of Quebec through the Hon. the Commissioner of Crown Lands, has also consented to offer a bounty for the destruction of certain of the predaceous birds, such as sheldrakes and kingfishers. As to all appearances this may be the last report which I will be in a position to offer on the fisheries of the Gulf division, I would like to call your attention particularly to the many complaints which are being urged against the salmon watchers. As far as the rivers with which I have anything to do are concerned, all these complaints would cease if an arrangement could be entered into by which the supply of parent fish for the purposes of artificial hatching could be procured from those who now fish licensed nets in

the neighbourhood of the hatcheries, that is to say, if sufficient fish for the purpose of the hatcheries could be saved out of the ordinary market catch, leaving all the fish that now escape the licensed nets to reach the rivers. It ought to be possible without much extra trouble, or any greatly increased cost, to have this done, and were it done, these numerous complaints against the hatcheries would end.

#### COD.

Cod fishing began early, about the middle of May. Our returns show a yield of 244,881 cwts., being the largest fishing for many years back, in fact one of the best ever made. During the last of May and beginning of June, fish were very abundant on the banks of Bonaventure Island, in the county of Gaspé. Many vessels from the United States and Nova Scotia made good fares about 15 miles south-east from Percé on the Green and Orphan banks. By the end of June, however, the fish disappeared and the usual summer fishery made by the south shore boats was poor—in fact, the cod fishery on the south shore continued poor until the end of October, or about the time when this fishery usually closes, when the fish came in again abundantly, and from Newport up the Bay Chaleurs as far as Carleton, fish were taken plentifully as long as the boats could get out.

The late fall fishing for cod, smelt and herring between Gaspé and the upper part of the Bay des Chaleurs is never fully developed, owing to the want of any means of exporting the fish. Had the people along this coast any railway communication, or were the regular mail boat which runs along this coast, and is heavily subsidized by your Government, compelled to continue on the route as long as navigation remained open—and it would seem easy to make this one of the terms of the subsidy—then the fall fishing along the above mentioned coast would be greatly encouraged by affording an outlet for the fish, which at this season could be shipped to market in a slightly salted or frozen state. Communication between Pictou and the Magdalen Islands is kept open by a subsidized steamer until the end of December, and there is no reason whatever why a similarly subsidized steamer should not continue on the route between Gaspé and Dalhousie until quite as late a date. If this were done, it would give a great impetus to the fall fishing, and mean many thousands of dollars in the pockets of the fishermen along the coasts of Gaspé and Bonaventure.

On the north coast and Labrador the cod fishery was in many places an almost phenomenal one. The fish struck early, and remained abundant well in shore until a much later date than usual in the fall. As showing in some degree the enormous bulk in which the cod sometimes strike on this coast, I would mention the following instance: On Wednesday evening, the 29th of June last, I anchored in "La Canadienne" in five fathoms of water off Sheldrake Cove. This cove is about a mile long, and from the anchorage the water shoals gradually to the beach; the bottom is smooth, of fine sand and gravel. I had no sooner shoved clear of the ship in my gig, and the crew had only given a few strokes of the oars, when we ran the boat "aground" in a mass of codfish. This school or body of fish, filled the cove. The fish on the surface were being forced or lifted out of the water by the mass below. This condition of affairs existed all the way to the shore, where the inshore fish were being driven upon the beach by the weight of those behind. It was with difficulty that we forced our boat through this mass of fish to the shore. As far as we could sound with a 17-foot oar the fish were solid to the bottom. A similar condition of affairs was reported in many other smaller coves in the neighbourhood.

It is only on the north coast, in the neighbourhood of Sheldrake, Thunder River and Natashquan, and on the Labrador that the cod are known to school inshore in this way. When this happens the fish are schooling after the capelin, and they will not take the hook and line. Out of such a volume of fish as this condition of affairs would represent, all that is taken in one season by our fishermen would be a bagatelle, and it is when this schooling inshore exists that seines and trap-nets are of use. The fish are there in illimitable numbers, they won't take the hook, and it is only with the "twine" that they can be taken. Fish in a school are all of a uniform size. The simple trap-net affords at these times the most reasonable way of taking the fish. When the fish



remain off shore the trap-net, of course, is useless. It is only at certain spots that the fish school inshore or that trap-nets can be set.

As the permission to take bait had not been accorded by the Newfoundland Government, when the Nova Scotia fleet were fitted out in the spring, we had a large number of those who usually go bank fishing on the Labrador; those who were fitted with traps, and who secured good berths did well, those who had no traps did poorly, for though the fish were almost everywhere in great abundance, yet they did not, as I have said before, take the hook. The fleet from Newfoundland was not as large as usual, as many vessels were blocked by the ice outside the Straits of Belle Isle in June, and did not get west along the coast in time.

#### HERRING.

The catch of herring, though greater than that made in 1891, was yet considerably below the average. The spring fishery at the Magdalen Islands began well, but the fish did not remain long. The Bay Chaleurs fishery was good. I was assured this fall, when taking evidence under oath regarding certain bounty claims, that spring herring were never more abundant in the upper part of the Bay Chaleurs than they were last spring. Owing to the duty on this herring in the United States, there is now no market for it abroad; it is taken almost entirely for manure, it being claimed that it is the best available manure for potatoes, of which large crops are raised in Bonaventure county—some farmers claiming that as a manure for potatoes spring herring is worth \$2 a barrel. The summer herring fishery was poor, and in the fall the fleet of vessels which usually prosecute this fishery on the Labrador did nothing—the failure being complete.

#### MACKEREL.

The catch of mackerel was slightly above that made in 1891, being for 1892, 4,817 barrels, as against 4,518 in 1891. It is, however, only at the Magdalen Islands that any distinct mackerel fishery is carried on. The opinion of other fishermen in Gaspé Bay and in the Bay Chaleurs is that the mackerel are returning, and that we had this year a much better show of mackerel in these bays than we have had for some years; they judge of this by the increased quantity of mackerel taken in the herring nets which are put out for bait in August and September. The few mackerel taken in Gaspé Bay were large and fat. I secured one specimen at Gaspé which measured  $23\frac{1}{2}$  inches in length and weighed  $3\frac{1}{2}$  lbs. A few small schools of mackerel were reported seen off Ste. Anne's and Monts Louis, but none whatever were seen at Seven Islands Bay and the Cacoëses; where they once, about fifteen years ago, were so abundant.

#### LOBSTERS.

I last year reported an improvement in the lobster fishery, and I have again this season to report an increase in the total yield, the exact figures being for 1891, 960,995 lbs., for 1892, 1,127,934 lbs., an increase of 166,939 lbs. I would not like to say that this increase was really due to any improvement in the fishery, as the total number of traps fished is constantly being increased, but I would point to the fact that for the last four years the fishery has not gone back, that the lobsters are not decreasing in size, in fact, in some places, as at Percé and Port Daniel Bay, there is a perceptible increase in the size, as an evidence that the shortened close season and the enforcement of the size limit has at least told in staying the downward tendency of this fishery. If it were now only possible to stop the construction of new canneries, and to limit the number of traps fished in any locality, I believe that under the present regulations, well carried out, we might justly claim that a point has been reached in the Gulf division where, in connection with the lobster fishery, a stay has been put to the steady decrease in the fishery which was annually reported up to the last four years.

#### SEALS.

The seal fishery with vessels in the spring was again poor, most of the vessels having altogether missed the seals. We had about 40 vessels, all small schooners of from



20 to 45 tons, and manned by about 500 men, prosecuting the spring seal fishery in March and April. Seals were abundant, but for the last ten years these vessels have failed to make a successful catch, while each year the steamers from Newfoundland, which prosecute this fishing in the Gulf, have invariably done well. The sedentary fishery on the Labrador was good. Complaints being made by fishermen at Long Point, Labrador, that the sedentary seal fisheries at that point were hampered and injured by men coming in from Newfoundland with shoal nets, which they fished in the run of the seals towards the sedentary fisheries, a special officer was named at Long Point to protect these sedentary fisheries which are fished in April and May, before "La Canadienne" can get down to that part of the coast.

#### BAIT.

Spring herring for bait was abundant at the Magdalen Islands and on the south coast. Caplin was scarce and is now hardly ever used as bait on the south shore, though on the north shore, where it is the principal, and in many places the only bait, it is as abundant as ever. Squid struck early and was plentiful. Frozen herring, as used at Newport by Messrs. Robin, Collas & Co., became more popular with the fishermen, who at first were prejudiced against it. Launce and clams, when these can be had, are always used by the fishermen when other more easily obtained baits fail. Many vessels from the outer banks having failed to find bait on the Atlantic coast, came in to Port Daniel, Percé and Gaspé, where they all managed to obtain bait.

### SYNOPSIS OF FISHERY OVERSEERS' REPORTS.

#### BONAVENTURE COUNTY.

##### RESTIGOUCHE SUBDIVISION.

*Overseer J. A. Verge* reports a slight improvement in the salmon net fishery, with one station less. Salmon reached the fluvial portion of the river early. The month of June was very dry and the river low. The anglers on the Restigouche had a fairly good season. The guardians report a large stock of breeding fish all over the spawning grounds.

The smelt fishery shows a decided increase, the catch being 30,300 lbs. as against 8,400 lbs. in 1891. This increase is due to the fact that the fishermen have found better grounds for setting their bag-nets.

Herring were also quite abundant as far up the estuary of the Restigouche as Pointe La Garde. This was something altogether unusual.

##### CARLETON SUBDIVISION.

*Overseer P. Cyr* reports the salmon net fishery a failure. The fishermen attributed this to the prevalence of north-west wind during the season which kept the fish off the Quebec shore. Spring herring were very abundant, but mackerel and fall herring were scarce. The cod fishing was good during the fall.

Only one small lobster factory was operated in the subdivision. Lobsters were late in coming in, but were abundant later in the season.

##### BONAVENTURE SUBDIVISION.

*Overseer J. Smith* reports salmon fishing on the sea-coast poor. The net fishermen in the Cascapedia River did well up to the 20th June, after which date they were paid to take up their nets by the anglers. Lobster fishing began on the 1st of May, and the catch was an average one. Spring herring were abundant all along the coast. Caplin were not as plenty as last year. The summer catch of cod was good. In the early fall the fishing was slack, but after the 10th October it improved again, and there being plenty of small herring for bait the boats did remarkably well. Towards the end of October, boats at Paspebiac were taking from 12 to 13 cwt. per day.

## PORT DANIEL SUBDIVISION.

*Overseer John Phelan* reports cod-fishing began the 20th May, and the yield, though less than last year, may be reckoned a fair average catch. Bait was scarce during mid-summer, but in the fall small herring were abundant, and the inshore fishing was good : boats were taking from 4 to 10 drafts a day at the end of October. There were no very heavy storms, though high winds were frequent by which the fishing was greatly interrupted. Salmon fishing began on the 25th May and ended on the 25th July, though many nets were taken up at the end of June. The yield is about 800 lbs. greater than last year.

Lobster fishing commenced the 30th April and closed the 15th July. The catch shows an increase over that of 1891 of 36,055 lbs. This is, however, due rather to an increased number of traps having been fished, than to a natural increase in the number of lobsters. These were abundant and of good size. Packers paid the fishermen this season 50 cents per 100 lbs. and furnished the traps ; hitherto, at this figure, the fishermen had to furnish their own traps. Spring herring struck on the 20th April, and continued plentiful through May. At Port Daniel 800 barrels were sold for bait to fishing schooners from the banks at from 50 to 60 cents per barrel. Mackerel showed out in deep water, but they never came inshore. Caplin were plenty at Paspébiac between the 1st and 15th June, but scarce elsewhere. The fishery regulations were well observed, only one individual having been fined for having berried lobsters in his possession.

## GASPÉ COUNTY.

## GRAND RIVER SUBDIVISION.

*Overseer Henry Jones* reports cod-fishing began early, and was good during the beginning of the season ; it, however, fell off during the summer and early fall, showing up well again late in the season, just as the fishermen were about giving up. Salmon net fishing was good in the neighbourhood of Pabos ; at Grand River all the nets were bought off by the owner of the angling rights. Lobster fishing was about an average. In the upper part of the division lobsters were scarce, and the cannery shut down before the close of the season, while at Percé the fishing was good, and lobsters were as abundant as ever they were. The season was rough, and a good deal of damage was done to boats. At Percé, during a gale in August, some fifteen boats of the fleet at that station were wrecked and lost.

## GASPÉ SUBDIVISION.

*Overseer George Annett* reports the salmon fishery shows an increase of 5,462 lbs. as compared with that of last year, and had it not been for rough weather at the commencement of the season the catch would have been much heavier. The cod fishery is a trifle below that of last year. This decrease can also be attributed to the rough weather of the early season, when fish were most abundant. The herring catch is about the same as in 1891. Mackerel show a slight increase ; small mackerel were more abundant than they have been for many years. The prospect of the return of the mackerel is hailed with delight by the fishermen. There is a decrease of 14,020 lbs. in the return of the lobster fishery. This decrease was due to the very rough weather during the height of the fishing, which caused such a serious loss of traps as to seriously cripple the fishery. The smelt fishery was a fair one, though owing to the early stoppage of communication, this fishery had to be abandoned when at its best.

## MAGDALEN RIVER SUBDIVISION.

*Overseer Jos. Lemieux* reports salmon was scarce, and very few nets are fished for them in his subdivision. The cod fishery began well in June, and bait in the shape of herring and squid was always to be had, but during July and August the advent of white porpoises in great numbers at once put an end to the cod fishing, as the cod-fish are chased off the grounds by the porpoises. During the fall cod were abundant, but the weather was often rough, and on the whole the catch is not an average one.

## STE. ANNE DES MONTS.

*Overseer J. I. Letourneau* reports a small cod fishery, and that this was due entirely to the presence of white porpoises during the summer season. In the fall, when the porpoises had retired up the river, the cod returned and the fishing was good. No salmon nets were fished in the neighbourhood of Cape Chatte or St. Anne River, and only two small nets were fished down at Martin River. The fly fishing in the Ste. Anne River was poor, only 46 fish being taken. The bulk of the fish only ran into the river in August after the fishing season was over. Herring was abundant, and fully double the usual quantity was taken. A few caplin were taken in the eastern part of the subdivision, but none in the western.

## COUNTY OF SAGUENAY.

## GODBOUT SUBDIVISION.

*Overseer N. A. Comeau* reports, owing to a very early spring and fine weather, salmon appeared on the coast on the 26th May. Fish were unusually abundant, the catch being double that of last year. The fish taken both with the net and fly were larger than the average. Owing to the fine dry weather, the rivers were low and clear, which led to the fly fishing being below the average. Mackerel appeared at Godbout on the 25th July, and were of large size. In August several large schools were observed, but they did not come inshore. Later on a few mackerel were seined in the bay. Herring were fairly abundant throughout the season. Cod struck in early in great quantities, boats at English Point taking from 10 to 12 cwt. a day. This lasted for a week, when the white porpoises appeared on the scene and the cod were driven away to such an extent that enough could not be caught for local consumption. About the 15th August the porpoises left the coast, and the cod returned, and at the present date (26th October) they are in abundance. Bait was plentiful. Halibut were plenty. No special fishery with trawls is made for this fish; those that were taken were caught by fishermen fishing for cod. The seal hunt made at Manicouagan and Pointe des Monts was below the average.

## MOISIE SUBDIVISION.

*Overseer T. Migneault* reports salmon net fishing began on the 18th May and closed on the 23rd July; the catch yielded 34,032 lbs. more than last season. The fly fishing in Moisie River was also good, six rods having taken 305 fish weighing 6,100 lbs. The cod fishing was also good, having yielded 3,179 cwt. more than in 1891, and this in spite of the fact that heavy weather in August and September kept the fishermen ashore more than half their time. No mackerel were seen in the division, and no mackerel schooners visited the coast. The herring catch, as well as that of the halibut, was below the average. Seventy-three more seals were taken than in 1891.

## NATASHQUAN SUBDIVISION.

*Overseer Geo. Gaudin* reports the spring seal fishery was again poor, four vessels having only taken 209 seals between them. The salmon fishery at Natashquan River was a little better than the few last years; the average weight was also about 2 lbs. more than usual; the first salmon was caught on the 1st June. The anglers on the Natashquan River did well, though no fish were taken before the 24th June; 313 fish, averaging 12 lbs., were taken with the fly. The outside stations did poorly, owing to the prevalent strong winds having driven both the fish and the bait off shore. Cod and caplin came in on the 2nd June and continued plentiful till the 12th July, when they disappeared; during this time the fishermen all did well—one boat's crew, from Natashquan Harbour, took 440 cwt. green within these dates. Some boats also did well in deep water on the outer banks during the latter part of the season. There was a great increase in the cod fishery over last season, which was not by any means a bad one. No herring were taken at Natashquan, two schooners went down the coast about a hundred miles, and returned with only 10 barrels each. A lobster cannery was opened at Watsheeshoo, but only 43 cases were packed; the packers complain of the short season, and with reason, as on this coast they cannot begin operations as early as on the south shore.



## MINGAN SUBDIVISION.

*Overseer DuBerger* reports salmon fishing began early; the returns show a falling off as compared with the previous year; for the sea-coast nets this was due to the fact that the weather, and particularly the wind, was not favourable, while in the estuary of the St. John's River, where the principal fishing is made, a heavy freshet occurred during the height of the fishing, which prevented the nets from being properly fished for ten days. The cod fishery was an exceedingly good one all over the coast, the fishing began early, was constant during the season and continued as long as it was possible for boats to get out. During the month of June cod frequently schooled inshore, between Sheldrake and Thunder River, in enormous quantities. The catch of herring was considerably greater than in 1891. The spring seal fishery was again a failure.

## ST. AUGUSTIN SUBDIVISION.

*Overseer J. LeGouvie* reports salmon fishing below the average of recent years. The cod fishery was one of the best made for many years; the shore fishermen all did well, especially those that were rigged with trap-nets. The Nova Scotian fishing fleet was the largest of recent years, as, owing to the bait trouble, many vessels that usually went to banks were fitted for the Labrador fishery instead. The number of Newfoundland vessels was about as usual; most of these vessels did not come west of St. Augustin Bay. The sedentary seal fishery was about the same as last year, slightly below the average.

## BONNE ESPERANCE SUBDIVISION.

*Overseer W. H. Whitney* reports fishing began early. The salmon fishery was below the average, and this has generally been the case when cod are abundant. The cod fishery was one of the best for many years, the fish struck in early in June, and fishing continued steadily through the season, which here lasts but little more than a month—that is, the regular summer fishery. Cod are, of course, taken right into the fall, in deep water off shore. Fall herring were scarce, a few schools of herring struck early in the season before the cod fishery was over; they were, however, neglected at the time, and passed on; when the cod fishery was over, and fishermen had time to rig up for herring, the schools had gone and they never came back. The spring seal fishery with nets was below an average—the seals either passed outside, or passed before any of the nets were out.

I have the honour to be, sir, your obedient servant,

WM. WAKEHAM.

*Fishery Officer.*

## SYNOPSIS OF FISHERY OVERSEERS' REPORTS IN THE PROVINCE OF QUEBEC (EXCLUSIVE OF THE GULF DIVISION) FOR THE YEAR 1892.

### SOUTH SHORE RIVER ST. LAWRENCE, FROM CAPE CHATTE TO POINT LÉVIS.

*Overseer Johnny Joncas* reports the fishing season to have been prolonged far in December, resulting in a good yield being secured. Herring fishing with gill-nets was quite remunerative, but few were taken in the fascine fisheries. Sardines and caplin only being found in the weirs. It is worthy of note as occurring for the first time that 10,000 lbs. of halibut are returned for this district by the cod fishermen. Salmon seemed more plentiful than last year; one of the best stands at Mechins taking twice the usual quantity compared with the previous seasons. Fly fishing in Matane River was about as good as last year, forty fish being secured. Salmon were not molested in that stream last season, not a single complaint reaching him. Mr. Joncas states that he can only report an amelioration and not a complete success in the observance of the saw-dust regulation, although he has fined several parties for allowing saw-dust to escape; mill rubbish is fairly well kept from the streams. The total value of the fisheries of the Matane division foots up to \$18,028, being an increase of nearly 50 per cent over that of last year.

*Overseer L. S. E. Grondin* reports an improvement in the yield of salmon and sardines over that of last year, but a very large falling off in herring, due to the fact that the fishery which captured 10,000 barrels of these fish in 1891 was not in operation when the herring struck in last season. This shortage also explains the decrease in value of the fisheries of over 50 per cent; the total value being given only at \$28,500.



*Mr. Grondin*, who also took temporary charge of the neighbouring division after *Mr. H. Martin* was suspended, reports a small catch of fish in this district.

*Overseer Napoléon Levesque* reports a fair fishing season. The decline in salmon is more than made up by the increased yield of herring and sardines. He ascribes the inferior catch of small and coarse fish to the strong winds prevailing during the fishing time. The total value, however, shows an increase of about 20 per cent over that of last year, being computed at \$48,100.

*Overseer Xavier Pelletier* made no report, but his statistics show the catch of eels to have been better than that of 1891, which was considered a good year; over 88,000 lbs. of these fish were taken at Rivière Ouelle alone. At the same place, and at Ste. Anne de la Pocatière, 120 white whales or *marsovins* were captured as against only 20 the previous season. The total value of the fisheries of this division is reckoned at about \$18,000.

*Overseer Eugène Pelletier* states that eels are the staple fish of his district, over 300,000 lbs. having been caught last summer. Salmon also shows a slight improvement. Shad was more plentiful than for years past; more of these fish were taken in Beaumont alone than in the whole division in 1891. Herring and sardines did not seem to strike in, and were consequently rather scarce. Fishermen who complain of this scarcity little think to ascribe it to their wanton destruction and waste of small fish. *Mr. Pelletier* says he noticed, on the Quebec market, fish so small that in his opinion parties exposing them should have been prosecuted. This short-sighted destruction of immature fish during a single year in the St. Lawrence would supply this division for 20 or 30 years and more. The close seasons were generally well observed. The total value is given at \$32,300, being over 75 per cent in excess of the preceding year. In fact, this officer considers the investment of capital in the fishing industry as remunerative, if not more so, than any other.

#### NORTH SHORE RIVER ST LAWRENCE, FROM QUEBEC TO BERSIMIS.

##### QUEBEC AND MONTMORENCY DIVISION.

*Overseer L. P. Huot* reports a favourable season's operation. With the exception of sturgeon and smelts, which have considerably diminished, all other kinds of fish have yielded remarkably well, especially shad, which has increased from 718 lbs. in 1891, to 16,170 lbs. last season. The take of salmon also exceeded that of the preceding year by nearly 50 per cent, and eels by 33 per cent. No violation of the fishery laws came under this officer's notice. As usual, all the fish caught in this division valued at (\$12,450, an increase of 30 per cent) are sold on the Quebec markets.

*Overseer Ulysse Bhéreur* again reports a further decrease in the general yield of his division. The salmon fishery seems to be steadily declining. Sardines were as numerous as usual. Eels yielded an average catch, but caplin was very scarce, in fact, in some parts of this district none at all could be secured. The total value of these fisheries only amounts to \$8,400, a decrease of over 35 per cent as compared with that of 1891, which was considered a small catch.

*Overseer L. N. Catellier* also returns a serious diminution in all kinds of fish in the Saguenay district. It is the first time that herring and caplin were known to fail. Salmon net fishing was poor. Fishermen ascribe this shortage to the absence of eastern winds during the fishing period. This seems to be corroborated by the large take on the north coast below Bersimis. The anglers on the various tributaries did not seem to fare better than the net fishermen. Two guardians were constantly patrolling during four months between Bersimis and River aux Canards, but reported no violations of the fishery laws. The value of the fisheries of this division only amounts to \$16,000—a decline of nearly \$11,000 from 1891.

#### FROM QUEBEC TO UPPER OTTAWA.

##### SHERBROOKE AND MEGANTIC DIVISIONS.

*Overseer P. W. Nagle* states that he estimates the catch of fish in the several lakes, ponds and streams of the county of Stanstead to be about the same as that of the pre-

ceding year. It is all used for home consumption. There are no obstructions to the passage of fish now, the fish-ways are all kept in proper order. Mr. Nagle is not aware of existing abuses of any kind in his district. He values the total yield at about \$2,800.

*Overseer Joel Shurtleff* made no report, but returns an average catch of fish, the principal kinds being trout, of which he returns 20,000 lbs.

*Overseer A. L. Darche* states the yield of fish but slightly differed from that of 1891. The various close seasons were well observed. The four fish-ways in his district are now in good order; one had been carried away by ice and logs at Lake Weedon, but it has been rebuilt since. The only abuse complained of is the saw-dust mill and rubbish nuisance. The total catch of these lakes amounts to 66,000 lbs., principally maskinongé, pickerel, pike, bass and trout.

*Overseer J. B. McDonald* reports that owing to heavy rains angling was not up to the average. He reports that many fish were killed by lumbering companies in blasting operations. He seized and destroyed gill-nets found illegally set.

## MAGOG AND BROME DIVISION.

*Overseer N. A. Beach* returns about the same quantity of fish as last year, but makes no report.

*Overseer H. Greene* reports that lake trout and bass were more plentiful than during the year previous. Pickerel seemed scarcer than usual in the lake; for this Mr. Greene is unable to account. The close seasons were well observed. This officer is of opinion that the close season for lunge should commence on 1st October, instead of the 15th as at present. Last season lunge were on the shoals to spawn by the 5th October. He estimates the total value of fish at \$3,760; one man alone taking over 2,000 lbs.

## MISSISQUOI BAY DIVISION.

*Overseer P. E. Luke* reports that as doré came into Missisquoi Bay a month later than usual, fewer were taken. Few fishermen took part in the shad fishing last fall. No abuses of any kind came to his knowledge. The close seasons were well observed. The fish-way in Mr. Bissett's dam was carried away by the ice last spring, and owing to the high water it was impossible to do any more than temporary repairs. Mrs. Desrivières' dam is in the same way. The manager of Mr. E. T. Bank's old mill consented to an opening being made in the dam for the passage of fish, as it is not in use. The fisheries of this bay are valued at only \$2,741.

## IBERVILLE DIVISION, INCLUDING RICHELIEU RIVER.

*Overseer J. B. Chevalier* states that owing to the freshets causing the waters to remain high for so long a period, the great eel weirs of this division were not got ready, and all fishing done was with hoop-nets and night-lines. The catch of eels, which last year amounted to 57,000 lbs., has dwindled down to 6,200 lbs. These eels are shipped to American markets, where they always find ready sale.

*Overseer J. O. Dion* also reports a great falling off, ascribed to the same reason as the above officer, viz., the high water prevailing during the best part of the fishing season. Mr. Dion hopes for beneficial results from the repairs to the St. Ours dam, but the work is not yet completed. Several fishing implements were seized by this officer during the season, with good effect.

## CHATEAUGUAY DIVISION.

*Overseer Joachim Laberge* reports a general falling off of fish in his district, which he attributes to the prohibition to fish for soft fish during the spring time. Only twenty fishermen took licenses. Should the close season for bass remain from the 25th May to 1st July, it will be necessary to set apart Chateauguay River, otherwise the numerous anglers will soon deplete this stream of that game fish. As many as sixty fly fishermen were counted at one time. The Nun's dam at Chateauguay, and the one at Ste. Martine, were so much damaged by ice and freshets last spring that fish were afforded an easy

passage up the stream. The total value of these fisheries is computed at \$10,240, while in 1891 it was \$17,680.

## BEAUHARNOIS DIVISION.

*Overseer John Kelly* returns about the same value of fish as he did in 1891, although he states bass and pickerel are falling off. This he attributes to the destruction of young fish by netting in the early season, and even recommends the total prohibition of seine or gill-nets there for a few years, to allow the finny tribe time to recuperate from their present exhausted condition. The total value is reckoned at \$11,000.

## LAPRAIRIE AND VERCHÈRES DIVISION.

*Overseer John Morris* reports an exceedingly small catch of all kinds of fish. Owing to the withdrawal of the permits to take soft fish during the spring close season, many fishermen did not think worth while to secure licenses after the spring fishing was over. The few who had permits did well. Bass were said to be more plentiful this season than for the past ten years; even with hook and line good catches were secured. Mr. Morris complains that large quantities of young fish sent to Montreal markets from other divisions are so very small that they are totally unfit for food; some consignments had to be thrown away as no sale could be effected. Samples of these were weighed—it took ten to the pound. The whole yield does not amount to \$7,000, while in 1890, the same division yielded \$40,000.

## YAMASKA DIVISION.

*Overseer Denis Shooner* reports a falling off in the fisheries under his charge, which he ascribes to the prohibition of the privilege of capturing soft fish during the close seasons of other species. He is of opinion that some fishermen purposely underrate their catch. Should the soft fish prohibition be continued in force next season, Mr. Shooner thinks something should be done to strengthen the officers' hands to carry out their instructions. Amongst others, he suggests prohibiting the sale of these fish on the markets of Sorel, Three Rivers and Montreal, as well as their export which is now carried on an extensive scale. The total value is made up at \$5,000.

## NICOLET DIVISION.

*Overseer George Boisvert* states that owing to the prohibition to catch soft fish during the spring and to the extension of close seasons, fishing was prosecuted with less vigour than other years, and the yield is naturally smaller. About a dozen fishermen defiantly fished without licenses, and this officer with the assistance of two men could not seize their seines, as they were always together, and on one occasion nearly drowned them, as he and his two men barely escaped with their lives. An example should be made, some of these ruffians should be prosecuted and heavy fines or imprisonment imposed. The total value of the fisheries of this division amounts to \$5,547.

*Overseer Joseph Charbonneau* states that there are no licenses granted in Yamaska River. He had to contend with illegal seining last spring, and three parties were fined for such infraction of the fishery laws. The fish-ways were not well repaired and will only be efficient when the water is high.

## BERTHIER AND MONTCALM.

*Overseer S. A. Grant* makes no report, but returns a decreased catch as compared with that of previous years, attributed no doubt to the soft fish prohibition. The total value amounts to \$6,500, a decrease of 25 per cent from last year.

*Overseer Wm. Ritchie*, of the Montcalm division, sent in his statements too late to be available for publication.

## TERREBONNE DIVISION.

*Overseer Joseph Lauzon* states that licenses were issued later than usual, which accounts for the slightly decreased catch returned. Shad has almost entirely disappeared



from these waters. Hook and line fishermen did well. The fishery regulations were generally well observed.

*Overseers Jos. Filiatrault and T. Cloutier* report trout as plentiful in the inland waters of the above named division as ever. The extension of the close season to the 30th April will be an additional protection to this game fish. The regulations were generally well observed. Fish-passes are needed in different places and several owners of dams are willing to have them put in.

*Overseer Damien Filiatrault* states that the portion of River Jesus under his charge is almost entirely depleted of fish, and no improvement can be looked for, so long as the two principal dams on that stream remain unprovided with fish-passes.

#### LAKE TWO MOUNTAINS AND ISLE PERROT DIVISION.

*Overseer Theo. Sabourin* sends no report. He returns the yield of the Rigaud district at about 50,000 lbs. of fish, mostly coarse fish.

*Overseer Julien Monpetit* makes no report either, but returns a considerably decreased catch, remarking that fishermen, in his opinion, underrate the quantity of fish caught. The total value of the whole division only comes to \$2,451, being a decrease of nearly 50 per cent as compared with 1891.

#### LOWER OTTAWA DIVISION.

*Overseer Robt. W. Jones* reports a falling off in some kinds of fish, owing to netting not being allowed before 1st July, while others showed signs of improvement, the general result amounting to \$4,500, an increase over last year of \$600. The four dams on North River are still unprovided with fish-passes. The close seasons are generally well observed, but his fishermen need close supervision. Only the fear of having their implements seized keeps them from illegal practices.

#### UPPER OTTAWA AND GATINEAU LAKES DIVISION.

*Overseer Joseph Marion* reports a shortage in the catch of fish, especially in that part of the Ottawa River from Carillon up to the Chaudière Falls. No signs of improvement can be expected there so long as the Government dam remains unprovided with a fish-pass, and so long as these waters are used as a receptacle for all saw-dust and rubbish from the large mills at the Chaudière and elsewhere along its banks. The fact that fishermen were not allowed to fish for coarse fish during the close season for other species, also contributed to the decrease. On the Gatineau lakes fishing was as good, if not better, than formerly. Nearly all these lakes are leased to clubs, who have agreed to efficiently protect them during the close seasons, and fish are certainly becoming more plentiful. In Lake des Chênes hook and line fishing alone was permitted.



## PROVINCE OF QUE

RETURN showing the Number and Value of Vessels, Boats and Fishing Material, the  
of Bonaventure, Province

## RESTIGOUCHE SUBDIVISION

NAME OF DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.					
	Vessels.				Boats.		Nets.		Seines.		Smelt nets.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.
Head of Tide to Maguasha .....			\$		23	\$ 364	28	5330	5280		12	\$ 300

## CARLETON SUBDIVISION

Maguasha and Nouvelle .....					55	550	55	3400	900	300	150	
Carleton .....					82	820	82	4500	1400	400	200	
Maria .....					97	970	97	5600	1875	800	400	
Totals .....					234	2340	234	13500	4175	1500	750	

## BONAVENTURE SUBDIVISION

New Richmond .....					30	280	33	970	485			
Black Capes .....					27	165	35	2000	1200			
Capelin .....					175	1950	155	6000	2700	200	125	
Bonaventure .....					200	2900	200	10000	5000	1150	715	
New Carlisle .....	1	10	100	3	40	450	50	760	630	600	500	
Paspebiac .....					80	900	150	1300	900	300	225	
Totals .....	1	10	100	3	552	6645	623	21030	10915	2250	1565	

## PORT DANIEL SUBDIVISION

Paspebiac Portage .....					36	2200	85	1200	700	240	400	
Nouvelle .....					35	2100	90	1400	750	120	200	
Shigawake .....					30	900	60	1200	600	40	50	
Point Loup-Marin .....					65	820	100	1400	700	60	70	
Port Daniel .....					50	2500	120	1200	600	100	150	
L'Anse à la Barbe .....					25	1500	60	1000	600	100	150	
L'Anse aux Gascons .....					67	5000	170	2500	1200	300	450	
Totals .....					308	15020	685	9900	5150	960	1470	

## TOTAL FOR COUNTY

Restigouche Subdivision .....					23	364	28	5330	5280		12	300
Carleton .....					234	2340	234	13500	4175	1500	750	
Bonaventure .....	1	10	100	3	552	6645	623	21030	10915	2250	1565	
Port Daniel .....					308	15020	685	9900	5150	960	1470	
Totals .....	1	10	100	3	1117	24369	1570	49760	25520	4710	3785	300

## BEC—Gulf Division.

Number of Men employed, with the Kinds and Quantities of Fish, &c., in the County of Quebec, for the Year 1892.

(Head of Tide to Maguasha).

KINDS OF FISH.											FISH PRODUCTS.			Fish used for local consumption, barrels.	VALUE.
Smelt, lbs.	Salmon, fresh, lbs.	Cod, cwt.	Haddock, cwt.	Herring, barrels.	Herring, smoked, boxes.	Mackerel, barrels.	Trout, barrels.	Eels, barrels.	Cod Tongues and Sounds, barrels.	Lobsters, in cans, lbs.	Cod Oil, galls.	Fish used as bait, barrels.	Fish used as manure, barrels.		
30300	40140	.....	.....	160	...	.....	.....	.....	.....	.....	.....	.....	.....	100	\$    cts. 10,663 00

(Maguasha to Big Cascapedia River).

.....	6300	80	.....	80	150	.....	.....	12	.....	.....	40	20	4500	850	7,833 50
.....	3000	150	.....	200	240	10	2	15	.....	7600	75	30	14750	1200	15,859 00
.....	12500	1200	.....	200	300	15	.....	50	.....	.....	600	300	18000	1500	25,275 00
.....	21800	1430	.....	480	690	25	2	77	.....	7600	715	350	37250	3550	48,967 50

(Big Cascapedia to Paspebiac Point).

.....	2500	100	.....	.....	100	.....	.....	.....	.....	.....	60	20	400	240	2,189 00
.....	2700	350	.....	10	80	.....	.....	.....	.....	.....	253	50	500	235	3,546 20
.....	325	750	.....	15	100	.....	.....	.....	.....	27280	500	450	5500	850	14,376 70
.....	600	3000	10	20	100	.....	.....	.....	.....	16800	2000	900	7500	2200	30,822 00
.....	.....	600	.....	10	50	.....	.....	.....	.....	10560	400	375	4000	350	8,358 40
.....	.....	2950	40	10	75	.....	.....	.....	.....	.....	2000	900	5000	850	21,528 75
.....	6125	7750	50	65	505	.....	.....	.....	.....	54640	5213	2695	22900	4725	80,821 05

(Paspebiac Point to Point Maquereau).

.....	.....	1700	20	200	.....	.....	.....	5	.....	1200	360	2000	250	11,690 00
.....	.....	900	.....	50	.....	.....	.....	.....	38496	600	260	100	250	11,344 44
.....	.....	700	5	50	.....	.....	.....	.....	.....	500	430	300	150	4,987 50
.....	.....	850	.....	30	.....	.....	.....	.....	25440	600	350	200	100	8,786 60
.....	21047	1700	.....	30	.....	.....	.....	5	27940	1200	380	600	150	17,906 00
.....	3727	1100	.....	50	.....	.....	.....	10	16450	800	330	400	100	9,738 40
.....	743	2850	10	60	.....	.....	.....	10	.....	2000	680	200	300	16,498 60
.....	25517	9800	35	470	.....	.....	.....	30	108326	6900	2790	3800	1300	80,951 54

## OF BONAVENTURE.

30300	40140	.....	.....	160	.....	.....	.....	.....	.....	.....	.....	.....	.....	100	10,663 00
.....	21800	1430	.....	480	690	25	2	77	.....	7600	715	350	37250	3550	48,967 50
.....	6125	7750	50	65	505	.....	.....	.....	.....	54640	5213	2695	22900	4725	80,821 05
.....	25517	9800	35	470	.....	.....	.....	.....	30	108326	6900	2790	3800	1300	80,951 54
30300	93582	18980	85	1175	1195	25	2	77	30	170566	12828	5835	63950	9675	221,403 09

RETURN showing the Number and Value of Vessels, Boats and Fishing Material,  
County of Gaspé, Province  
GRAND RIVER SUBDIVISION

NAME OF DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.					
	Vessels.			Boats.			Nets.		Seines.		Smelt, lbs.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.		Value.
		\$										
Newport.....					58	3,480	145	360	200	60	60	.....
Newport Point and Anse aux Canards.....					45	4,000	120	2,600	1,820	50	70	.....
Grand Pabos.....					29	1,700	67	1,500	400	65	55	.....
Little Pabos.....					35	2,200	76	1,800	915	45	50	.....
Grand River.....					89	6,275	217	4,075	2,550	125	130	.....
Cape Cove.....					70	4,500	160	3,150	2,100	80	80	.....
L'Anse à Beaufils.....					50	1,750	100	1,850	850	60	50	.....
Percé and Bonaventure Island.					165	9,900	330	8,250	4,120	150	150	.....
Corner of Beach.....					13	300	26	340	180	20	20	.....
Totals.....					554	34,105	1,241	23,925	13,135	655	665	.....

GASPÉ SUBDIVISION (Corner

Barachois, Mal Bay.....					170	3,150	168	3,630	1,822	350	350	4,000
Malbaie.....					62	2,080	80	1,400	560	84	180	.....
Point St. Peter.....					62	3,400	92	1,480	1,070	150	195	.....
Chien Blanc.....					58	1,100	58	700	240	80	60	.....
Bois Brulé.....					26	554	32	360	170	.....	.....	.....
Seal Cove.....					33	615	39	625	200	.....	.....	.....
Douglastown.....					78	1,570	81	1,350	800	240	160	.....
Sandy Beach.....					38	440	45	1,843	1,570	.....	.....	.....
Gaspé, North and South.....					32	360	37	3,264	2,300	630	680	78,308
Peninsula.....					27	360	44	1,969	1,610	.....	.....	.....
Cape aux Os.....					23	384	21	755	460	20	10	.....
Little Gaspé.....					22	353	21	600	320	.....	.....	.....
Grande Grève.....					36	1,180	40	974	620	165	347	.....
Ship Head.....					47	1,384	44	1,360	1,140	40	55	.....
Cape Rosiers.....					64	1,260	105	800	300	50	50	.....
Totals.....					778	18,190	898	21,110	13,182	1,809	2,087	82,308

the Number of Men employed, with the Kinds and Quantities of Fish, &c., in the of Quebec, for the Year 1892.

(Point Macquereau to Corner of Beach).

KINDS OF FISH.							FISH PRODUCTS.				Fish used for local consumption, brls.	VALUE.	
Salmon, fresh, lbs.	Cod, cwt.	Haddock, cwt.	Halibut, lbs.	Herring, brls.	Mackerel, brls.	Cod Tongues and Sounds, brls.	Lobsters, in cans, lbs.	Cod Oil, galls.	Fish used as bait, brls.	Fish used as manure, brls.			
.....	6,450	27	550	.....	.....	.....	22,512	3,225	850	40	500	\$	cts.
100	5,375	20	700	.....	.....	2	14,400	2,687	900	30	395	36,911	18
10,800	4,850	10	100	.....	.....	.....	.....	2,425	1,200	35	90	30,403	40
.....	5,250	10	375	.....	.....	.....	7,200	2,625	1,460	20	195	27,177	50
.....	16,300	35	425	.....	.....	3	40,560	8,150	2,200	27	325	28,735	50
.....	12,750	32	600	.....	.....	.....	33,600	6,375	3,250	180	200	87,096	90
.....	6,500	12	200	.....	.....	.....	.....	3,250	850	40	127	70,566	00
.....	12,500	75	.....	.....	.....	.....	32,440	6,250	4,550	.....	375	32,415	00
1,600	3,250	.....	.....	.....	.....	.....	6,720	1,625	275	.....	35	71,879	00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17,088	30
12,500	73,225	221	2,950	.....	.....	5	157,432	36,612	15,535	372	2,242	402,272	78

of Beach to Cape Rosiers).

6,080	3,300	.....	100	.....	.....	.....	2,700	800	.....	180	19,716	00
900	7,990	.....	80	.....	2	28,848	5,700	805	.....	200	44,841	22
394	3,940	.....	190	.....	.....	.....	2,410	814	.....	96	21,232	80
.....	1,170	.....	100	.....	.....	.....	850	348	.....	85	6,917	00
.....	750	.....	45	.....	.....	14,928	550	190	.....	50	6,372	42
620	690	.....	35	.....	.....	14,064	470	180	.....	70	6,093	46
2,404	2,580	.....	300	.....	.....	.....	1,940	500	.....	200	15,766	80
8,449	384	.....	193	18	.....	.....	290	135	.....	50	5,056	80
19,324	.....	.....	20	8	.....	.....	.....	.....	.....	40	8,142	20
11,511	200	.....	65	25	.....	.....	150	50	.....	40	4,139	70
2,325	325	.....	8	.....	.....	8,640	240	172	.....	34	3,663	10
900	305	.....	73	.....	.....	.....	230	184	.....	72	2,537	00
1,100	860	.....	47	.....	.....	.....	655	322	.....	95	5,426	50
720	940	.....	50	.....	.....	.....	690	352	.....	50	5,603	00
.....	1,500	.....	120	.....	.....	.....	1,100	600	.....	120	9,110	00
54,727	24,934	.....	1,426	51	2	66,480	17,975	5,452	.....	1,382	164,618	00



RETURN showing the Number and Value of Vessels, Boats and  
FOX RIVER SUBDIVISION

NAME OF DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.				KINDS			
	Vessels.				Boats.		Nets.		Seines.		Salmon, brls.	Salmon, fresh, lbs.	Cod, cwt.	
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.				Value.
		\$												
Anse à Louise.....				58	1,225	56	1,320	630	20	15			1,640	
Jersey Cove.....				57	805	55	1,010	490					1,300	
Anse à Grisfonds.....				165	3,300	142	3,000	1,500	40	140		400	3,500	
Fox River.....				183	3,630	169	3,320	1,700	130	160			4,300	
Petit Cap.....				82	1,150	93	1,960	1,250					2,300	
Echourie.....				29	680	23	370	250					750	
Pointe Jaune.....				25	250	18	400	330					650	
Anse à Valeau.....				30	300	29	470	200					675	
Totals.....				629	11,340	585	11,850	6,350	190	315		400	15,115	

MAGDALEN RIVER SUBDIVISION

Grand Etang.....				26	350	26	725	360	80	60			1,000
Pointe Sèche.....				42	780	38	1,125	675			1		1,600
Chlorydorme.....				40	740	38	1,125	600				600	1,500
Frigate Point.....				39	300	42	1,025	455					850
Grand and Little Vallée..				67	915	76	1,450	695	30	50		400	1,450
Gros Male.....				40	275	41	624	175				100	650
Magdalen River.....				20	260	28	546	200			1	1,000	350
Anse Pleureuse.....				20	200	24	400	160				1,600	400
Monts Louis.....				36	500	40	720	360	80	60		1,480	450
Rivière à Pierre.....				11	75	12	180	60					150
Totals.....				341	4,895	365	7,920	3,740	190	170	2	5,180	8,400

STE. ANNE DES MONTS SUBDIVISION

Glaude River.....				15	650	30	450	320			6		468
Marsouins.....				9	290	18	250	175					375
Martin River.....				8	250	15	352	250					168
Ste. Anne's.....				52	1,800	86	1,320	950	140	96		875	1,278
Cape Chatte.....				20	800	40	950	600	106	90			152
Totals.....				104	3,790	189	3,322	3,295	246	186	6	875	2,441

Fishing Material, &c., in the County of Gaspé, &c.—*Continued.*

(Cape Rosiers to Fame Point).

OF FISH.						FISH PRODUCTS.					Fish used for local consumption, brls.	VALUE.  \$ cts.
Haddock, cwt.	Halibut, lbs.	Herring, brls.	Trout, brls.	Cod Tongues and Sounds, brls.	Porpoise skins, No.	Porpoise Oil, galls.	Whale Oil, galls.	Cod Oil, galls.	Fish used as bait, brls.	Fish used as ma- nure, brls.		
40	3,000	425	.....	4	.....	.....	.....	1,300	400	80	250	11,932 50
25	3,000	450	.....	5	.....	.....	.....	1,060	380	110	250	10,361 50
25	5,000	500	.....	6	.....	.....	.....	2,500	700	100	300	22,027 50
35	9,000	520	.....	8	.....	.....	.....	3,500	900	130	430	27,327 50
25	5,000	240	.....	7	.....	.....	.....	1,500	240	55	180	13,795 00
15	2,100	170	.....	3	.....	40	1,500	500	150	35	90	5,851 00
22	2,600	190	.....	5	.....	.....	.....	400	90	15	40	4,629 50
10	1,200	150	.....	4	.....	.....	.....	450	150	25	50	4,525 00
197	30,900	2,645	....	42	....	40	1,500	11,210	3,010	550	1,590	100,449 50

(Fame Point to Rivière à Pierre).

30	4,500	12	.....	2	.....	.....	.....	650	140	.....	30	5,719 00
35	5,000	23	.....	4	.....	.....	.....	1,100	260	.....	56	9,036 00
30	10,000	40	.....	4	.....	.....	.....	1,000	300	.....	60	9,285 00
12	4,200	27	.....	4	.....	.....	.....	550	180	.....	40	5,098 50
14	9,000	30	1	4	.....	.....	.....	950	320	.....	75	8,899 00
.....	800	30	.....	1	.....	.....	.....	450	175	.....	45	3,792 50
2	3,000	20	.....	1	.....	.....	.....	215	60	.....	30	2,494 00
.....	.....	15	.....	.....	.....	.....	.....	266	65	.....	30	2,511 40
.....	.....	40	.....	.....	.....	.....	.....	300	75	.....	75	3,033 50
.....	.....	10	.....	.....	.....	.....	.....	100	35	.....	20	892 50
123	36,500	247	1	20	....	.....	.....	5,581	1,610	.....	461	50,761 40

(Glaude River to Cape Chatte).

.....	800	103	.....	.....	.....	.....	.....	300	45	200	80	3,353 00
.....	1,200	20	3	.....	.....	.....	.....	200	40	95	42	2,283 00
.....	200	72	2	.....	.....	.....	.....	90	20	82	30	1,347 00
.....	1,230	1,150	12	.....	20	40	.....	860	300	182	360	13,710 00
.....	200	549	10	.....	32	65	.....	100	25	160	250	4,498 00
.....	3,630	1,894	27	.....	52	105	.....	1,550	430	719	762	25,191 00

RETURN showing the Number and Value of Vessels, Boats and  
MAGDALEN ISLANDS

NAME OF DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.							
	Vessels.			Boats.			Nets.		Seines.		Trap-nets.			
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.	Smelt, lbs.
			\$			\$			\$		\$			
Entry Island.....					6	150	15	1000	500					
Amherst Island.....	3	105	2000	20	149	5370	372	15085	8730	1070	1160			
Grindstone Island...	7	315	10500	50	107	10940	360	6880	2180	750	750			
Allright Island.....	5	225	7500	50	66	1980	153	1240	972					
Wolf Island.....					40	1200	140							
Grand Entry Island...					24	480	75	750	375			1	300	
Grosse Isle.....					25	750	64	100	100					
Bryon Island.....					32	1120	68	160	90					
Totals.....	15	645	20000	120	449	21990	1247	25215	12947	1820	1910	1	300	

TOTALS FOR COUNTY

Grand River Subdiv. ....					564	34105	1241	23925	13135	655	665				12500
Gaspé ".....					778	18190	898	21110	13182	1809	2087			82308	54727
Fox River ".....					629	11340	585	11850	6350	190	315				400
Magdalen ".....					341	4395	365	7920	3740	190	170				5180
Ste. Anne's ".....					104	3790	189	3322	3295	246	186			6	875
Magdalen Islands Sub- division.....	15	645	20000	120	449	21990	1247	25215	12947	1820	1910	1	300		
Totals.....	15	645	20000	120	449	21990	1247	25215	12947	1820	1910	1	300	82308	73682

Fishing Material, &c., in the County of Gaspé, &c.—*Concluded.*

## SUBDIVISION.

KINDS OF FISH.										FISH PRODUCTS.							VALUE.	
Cod, cwt.	Haddock, cwt.	Halibut, lbs.	Herring, barrels.	Mackerel, barrels.	Trout, barrels.	Cod Tongues and Sounds, barrels.	Lobsters, in cans, lbs.	Seal Skins, No.	Porpoise Skins, No.	Seal Oil, galls.	Porpoise Oil, galls.	Whale Oil, galls.	Cod Oil, galls.	Fish used as bait, barrels.	Fish used as manure, brls.	Fish for local consumption, barrels.	\$	cts.
25				50				50		250			15	10	200	20		
5855	350	2700	100	1258		2	94080	4380		22600			2113	40690	905	580	1,176	00
3620	100	2000	400	955			152976	2147		10700			2413	1320	200	850	138,458	40
150	14		25	650			35360	700		3500			100	410		730	66,825	79
100				400			4080						60	160		20	20,746	90
70				32			178452						50	50	150	150	6,965	20
260	8			380			74152	200		1000			40	480	100	100	26,516	28
500	10		40	1000			17280	240		1200			333	250	100	80	18,735	28
10580	482	4700	565	4725		2	556380	7717		39250			5124	43370	1655	2530	299,966	05

## OF GASPE.

73225	221	2950				5	157432						36612	15535	372	2242	402,272 78
24934			1426	51		2	66480						17975	5452		1382	164,618 00
15115	197	30900	2645			42	32912				40	1500	11210	3010	550	1590	100,449 50
8400	123	36500	247		1	20							5581	1610		461	50,761 40
2441		3630	1894		27			52		105			1550	430	719	762	25,191 00
10580	482	4700	565	4725		2	556380	7717		39250			5124	43370	1655	2530	299,966 05
134695	1023	78680	6777	4776	28	71	780292	7717	52	39250	145	1500	78052	69407	3296	8967	1,043,258 73



RETURN showing the Number and Value of Vessels, Boats and Fishing Material,  
**County of Saguenay, Province**  
GODBOUT SUBDIVISION

NAME OF DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.					
	Vessels.				Boats.		Nets.		Scines.		Trap- nets.	
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.
			\$			\$		\$		\$		\$
Manicouagan.....	1	12	300	3	2	150	2	190	95			
Godbout.....					8	175	12	1,200	1,200	300	300	
Pointe des Monts.....					4	275	6	600	600	100	90	1 275
Trinity.....					11	400	11	950	775			
Caribou Islands.....	2	26	1,200	6	28	840	25	1,500	1,500	60	40	
Egg Island.....					5	150	9	275	200	40	30	
English Point.....					30	850	45	1,700	1,725	45	45	
Pentecost.....					5	200	9	270	195			
Cailles Rouges.....					5	150	11	150	130	45	60	
Totals.....	3	38	1,500	9	98	3,190	130	6,835	6,420	590	565	1 275

MOISIE SUBDIVISION

Jambons.....	3	61	995	12	16	520	30	780	411			
Ste. Marguerite.....					1	90	2	300	204	40	10	
Seven Islands.....	2	49	1,300	10	20	880	43	518	353	186	172	
Moisie.....	1	54	300	4	33	2,100	48	4,925	5,100	575	550	
Pigou.....					2	100	4	120	100	50	50	
Totals.....	6	164	2,595	26	72	3,690	127	6,643	6,168	851	782	

the Number of Men employed, with the Kinds and Quantities of Fish, &c., in the of Quebec, for the Year 1892.

(Manicouagan to Jambons.)

KINDS OF FISH.										FISH PRODUCTS.					Fish used for local consumption, barrels.	VALUE.	
Salmon, barrels,	Salmon, fresh, lbs.	Cod, cwt.	Halibut, lbs.	Herring, barrels.	Herring, smoked, lbs.	Mackerel, barrels.	Trout, barrels.	Cod Tongues and Sounds, barrels.	Seal Skins, No.	Porpoise Skins, No.	Seal Oil, galls.	Porpoise Oil, galls.	Cod Oil, galls.	Fish used as bait, barrels.	Fish used as manure, barrels.		
.....	.....	.....	.....	35	.....	16	1	.....	115	2	495	150	.....	.....	15	15	\$ cts.
.....	17,084	139	510	207	.....	.....	.....	.....	260	.....	1,300	.....	105	9	.....	20	566 75
.....	15,914	209	50	155	.....	.....	.....	.....	196	.....	980	.....	70	3	.....	7	6,309 80
.....	20,571	145	1,235	146	.....	.....	2	.....	82	.....	410	.....	71	12	.....	15	5,525 30
.....	33,530	1,116	4,525	202	.....	.....	.....	1	44	.....	220	.....	558	84	.....	25	5,940 10
.....	.....	1,301	600	149	.....	.....	.....	.....	7	.....	35	.....	650	100	.....	6	13,691 70
.....	15,256	5,163	3,850	423	.....	.....	1	3	3	.....	15	.....	2,581	95	.....	95	7,041 75
.....	.....	578	300	41	.....	.....	7	.....	2	.....	6	.....	279	30	70	127	30,177 85
.....	2,380	989	500	75	.....	.....	3	.....	19	.....	57	.....	495	50	10	9	3,590 00
...	104,735	9,640	11,570	1,433	.....	16	14	4	728	2	3,518	150	4,809	383	100	319	5,704 55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	78,547 80

(Jambons to Pigou.)

.....	.....	1,721	2,620	414	5,500	.....	.....	7	1	.....	4	.....	1,200	108	.....	25	10,739 35
.....	6,125	45	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	30	10	.....	5	1,514 50
.....	31,200	2,959	2,125	168	.....	.....	.....	4	111	.....	308	.....	1,973	201	.....	55	22,146 65
4	206,146	3,900	2,000	.....	.....	.....	9	7	41	.....	198	.....	2,250	113	.....	59	60,639 15
.....	.....	158	300	.....	.....	.....	.....	1	4	.....	15	.....	125	25	.....	4	865 50
4	243,471	8,783	7,045	582	5,500	.....	13	19	157	..	525	.....	5,578	457	.....	148	95,905 15

RETURN showing the Number and Value of Vessels, Boats and  
MINGAN SUBDIVISION

NAME OF DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.					
	Vessels.				Boats.		Nets.		Seines.		Trap-nets.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.
			\$			\$		\$		\$		\$
Chaloupe. ....					6	200	12		30	35		
Little River. ....					8	400	16		75	75		
Sheldrake. ....					39	1600	94	350	250	500	3	900
Thunder River. ....	1	33	600	5	50	2000	100	100	150	300	2	500
Dock. ....					21	850	44	20	30	40		
Ridge Point. ....					14	540	28		40	40		
Jupitagan. ....					3	80	9	120	30	30		
Magpie. ....					70	3400	150	750	400	500		
St. John's River. ....					62	3000	140	1750	100	300		
Long Point. ....					12	450	28	200	150	150		
Mingan. ....					2	120	4	300				
Romaine. ....					1	35	1	80				
Esquimaux Point. ....					105	1450	190	1500	600	400		
La Corneille. ....					4	120	5	420				
Piashter Bay. ....					4	130	5					
Totals. ....	1	33	600	5	401	14375	826	5590	3750	1685	2370	5 1400

## NATASHQUAN SUBDIVISION

Watsheeshoo. ....					2	25	2					
Nabissippi. ....					1	15	2	200	75			
Agwanus. ....	1	17	400	7	11	500	24	300	100	25	90	
Isle à Michon. ....					6	270	14	100	40	30	25	
Natashquan Harbour. ....					45	3700	96	200	100	160	200	
Little Natashquan. ....	4	80	1400	25	20		52	1000	400	120	100	
Natashquan River. ....					10		20	2120	530			
Totals. ....	5	97	1860	32	95	6230	210	3920	1245	335	415	

Fishing Material, &c., in the **County of Saguenay, &c.**—*Continued.*

(Pigou to Watsheeshoo).

KINDS OF FISH.							FISH PRODUCTS.					Fish used for local consumption, barrels.	VALUE.	
Salmon, barrels.	Salmon, fresh, lbs.	Cod, cwt.	Halibut, lbs.	Herring, barrels.	Trout, barrels.	Lobsters, in cans, lbs.	Seal Skins, No.	Seal Oil, galls.	Cod Oil, galls.	Fish used as bait, barrels.	Fish used as manure, barrels.		\$	cts.
		300							230	150		16	1,731	00
		500							360	190	25	30	2,811	50
2		4800							3700	1000	70	85	24,987	00
		3900							3800	1000	230	170	21,365	00
		2500							1750	500		20	12,780	00
		1400							950	300		16	7,194	00
5		300							220	100		15	1,728	00
32		6000		40					4500	1200		260	32,332	00
	30000	4500	300						3300	800	350	150	29,575	00
5		800					12	50	520	100	20	50	4,283	00
8	4000	8					120	325				2	1,252	00
	3000				2		2	5				2	632	50
		3600	1000	250			2200	5220	2500	1000		450	26,563	00
5							50	150				4	218	50
7						2212	40	120				5	539	68
64	37000	28608	1300	290	2	2212	2424	5870	21830	6340	695	1275	167,992	18

(Watsheeshoo to English Point).

						2064			5		2	304	46	
8												128	00	
13	620	760			2		10	25	520	110	50	4,367	50	
1		500							375	60	15	2,566	00	
1		2900	1200						2200	450	100	15,141	00	
1	8700	1800	900	20	3		225	630	1250	200	80	11,719	25	
3	31750	220							160	50	15	7,587	00	
27	41070	6180	2100	20	5	2064	235	655	4505	875	.....	262	41,813	21



RETURN showing the Number and Value of Vessels, Boats and  
WASHEECOTAI SUBDIVISION

NAME OF DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING			
	Vessels.				Boats.			Nets.		Seines.	
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.
			\$			\$			\$		\$
Kegashka.. .. .					6	300	7	100	80	40	30
Mistassini.. .. .					2	75	2	100	50		
Musquarro.. .. .					2	20	2	60	40		
Washeecotai.. .. .					3	30	3	200	100		
Romaine.. .. .					4	80	4	200	100		
Coacochoo.. .. .					1	10	3	50	30		
Totals.. .. .					18	515	21	710	400	40	30

ST. AUGUSTIN SUBDIVISION

Wolf Bay.. .. .					4	105	4	150	75	40	20
Etamamin.. .. .					2	50	2	200	200		
Point à Mourier.. .. .					2	60	2	150	75		
Harrington.. .. .					30	600	36	300	150	350	275
Little Meccatina.. .. .					2	50	3			30	18
Whale Head.. .. .					24	400	28	810	480	100	50
Mutton Bay.. .. .					31	915	40	260	277	278	200
Big Meccatina.. .. .					3	150	5	100	100	120	100
La Tabatière.. .. .					9	270	12	412	206	220	200
Big Meccatina Island.. .. .					7	400	3	500	230	40	40
Kikapoe.. .. .					4	150	3	400	200		
Whale Head East.. .. .					1	15	3	200	175	40	60
St. Augustin River.. .. .					8	121	9	1500	675		
St. Augustin Harbour.. .. .					2	50	3	150	50		
Sandy Island.. .. .					2	100	2	171	170		
Caucasippi.. .. .					1	10	1	120	60		
Pointe à Giroux.. .. .					1	25	1	150	100		
L'Anse au Portage.. .. .					2	40	3	180	100		
Canso.. .. .					1	30	2	150	150		
Chicatica.. .. .					4	100	7	120	80	40	20
Totals.. .. .					140	3641	169	5823	3553	1258	983

Fishing Material, &c., in the County of Saguenay, &c.—*Continued.*

(English Point to Coacoashoo)

MATERIAL.		KINDS OF FISH.					FISH PRODUCTS.			Fish used for local consumption, barrels.	VALUE.
Trap-nets.		Salmon, barrels.	Cod, cwt.	Herring, barrels.	Trout, barrels.	Seal Skins, No.	Seal Oil, galls.	Cod Oil, galls.	Fish used as bait, brls.		
Number.	Value.										
	\$										\$ cts.
.....	.....	12	155	33	.....	7	21	100	25	15	1,192 65
.....	.....	10	10	6	.....	3	9	5	5	1	252 85
.....	.....	1	.....	.....	.....	25	75	.....	.....	9	133 25
.....	.....	9	9	4	.....	9	27	6	5	1	238 45
.....	.....	7	5	5	.....	3	20	60	3	5	316 70
.....	.....	2	.....	.....	.....	17	51	.....	.....	3	105 65
.....	.....	41	179	48	7	81	243	114	40	47	2,239 55

(Coacoashoo to Chicatica).

.....	.....	1	200	.....	.....	.....	.....	133	50	5	1,064 20
.....	.....	16	.....	.....	.....	80	240	.....	.....	2	264 00
.....	.....	2	.....	.....	.....	.....	.....	.....	.....	2	236 00
3	600	3	2500	185	.....	35	105	2000	610	60	14,171 25
.....	.....	.....	100	.....	.....	.....	.....	75	25	4	506 00
3	700	7	2000	.....	.....	500	1500	1500	500	48	11,879 00
4	725	7	3100	.....	.....	400	1200	2300	800	62	17,410 00
1	200	1	400	100	.....	318	954	370	100	6	3,367 10
1	180	4	450	60	.....	2000	6000	375	100	24	7,655 00
.....	.....	3	233	.....	.....	300	900	160	50	4	1,986 50
.....	.....	5	10	.....	.....	200	600	7	2	10	660 80
.....	.....	5	10	.....	.....	.....	.....	7	2	2	138 80
.....	.....	24	107	.....	21	.....	.....	80	25	24	1,245 00
.....	.....	1	200	.....	.....	150	450	150	50	3	1,430 50
.....	.....	3	70	.....	6	.....	.....	50	15	3	477 50
.....	.....	1	.....	.....	4	.....	.....	.....	.....	2	64 00
.....	.....	3	90	.....	.....	.....	.....	70	20	2	519 00
.....	.....	7	140	.....	.....	.....	.....	90	30	3	835 00
.....	.....	3	90	.....	.....	.....	.....	65	20	2	517 00
1	60	4	346	.....	.....	.....	.....	250	80	8	1,873 00
13	2465	100	10046	345	31	3983	11949	7682	2479	276	66,323 15

RETURN showing the Number and Value of Vessels, Boats and  
BONNE ESPÉRANCE

NAME OF DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.						FISHING MATERIAL.						
	Vessels.				Boats.			Nets.		Seines.		Trap-nets.	
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.
£	£	£	£	£	£								
Bull Cove.....					3	140	4	640	150				
Bay of Rocks.....					7	520	12	300	150	300	400	2	400
Dog Islands.....					4	300	8	800	600				
Old Fort Islands.....					16	660	33	550	320				
Bonne Espérance....	1	40	1000	10	80	4000	156	1800	900	1700	3000	5	900
Burnt Island.....					10	550	20	150	100	300	280	1	250
Pigeon Island.....					10	500	15	250	200	400	500	1	250
Stick Point.....					6	500	8	650	600	100	200	1	250
Salmon Bay.....					42	3000	125	200	200	1200	1500	2	500
Little Fishery.....					3	130	2	100	100				
Five League.....					4	200	4	500	500	200	150		
Middle Bay.....					22	1400	53	100	100	1500	2000	2	400
Belles Amours.....					1	50	2	150	130				
Bradore.....					21	750	30	1500	2000	1000	1200	2	500
Long Point.....					25	1000	43	4000	3500	600	600	2	400
Greenly Island.....					50	1800	100	750	750	1000	1000	1	200
Totals.....	1	40	1000	10	304	15500	615	12440	10300	8300	10830	19	4050

## ANTICOSTI ISLAND

Fox Bay.....					18	750	30	750	350	200	100		
Salmon River.....					15	500	35	300	150				
Mauzerolle.....					8	200	20	200	100				
Capelin Bay.....					10	320	25	300	150				
Macdonald's Cove...					20	600	45	300	150				
English Bay.....					15	500	22	400	250				
Strawberry Cove....					20	400	33	300	150				
Shallop Creek.....					2	50	2	200	175				
Goose Point.....					10	350	20	150	100				
Cormorant Point...					12	375	35	150	100				
Totals.....					130	4045	267	3050	1675	200	100		

Fishing Material, &c., in the County of Saguenay, &c.—Continued.  
SUBDIVISION.

KINDS OF FISH.						FISH PRODUCTS.					Fish used for local consumption, brls.	VALUE.	
Salmon, brls.	Cod, cwt.	Halibut, lbs.	Herring, brls.	Trout, brls.	Lobsters, in cans, lbs.	Seal Skins, No.	Seal Oil, galls.	Cod Oil, galls.	Fish used as bait, brls.	Fish used as manure, brls.			
11	120			10		25	75	120	10		6	\$	964 25
9	1300					23	69	1300	220		40		7,060 35
3	300					300	1200	300	30		12		2,466 00
12	750					73	229	750	170		25		4,404 85
48	6000		100	5				6000	1500		320		34,198 00
2	1500					80	240	1500	300		25		8,128 00
12	1000							1000	250		15		5,527 00
4	250			9		19	57	250	25		5		1,483 65
	5000							5000	1250		250		27,375 00
8	100					57	171	100	10		5		792 65
15	200					200	750	200	20		6		1,824 00
5	3000		800			33	90	3000	650		100		19,832 25
2	50					15	45	50	10		5		348 75
	2000		300			1000	4500	2000	500		70		15,230 00
	750		150			1000	4500	750	70		80		7,825 00
	2000					500	2000	2000	500		90		12,335 00
131	24320		1350	24		3325	13926	24320	5615		1054		149,794 65

## SUBDIVISION.

1	300	750	60	2	13000	10	30	200	160	50	30		4,140 25
5					30000	120	368				10		4,614 00
	500	500	100			12	36	330	200		6		3,235 40
3	550	1000	150		10500	15	45	366	200		8		5,283 15
2	1200	1500	200					800	450	10	15		7,594 60
	400	4000	40		9300	43	129	260	170	50	30		4,291 35
	500	6500	55			56	168	330	200	50	35		3,881 35
10				6		15	45				4		272 75
					50000						8		7,032 00
					60000						8		8,432 00
21	3450	14250	605	8	172800	271	813	2286	1380	160	154		48,676 85



RETURN showing the Number and value of Vessels, Boats and Fishing Material,  
RECAPITULATION FOR THE

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.									
	Vessels.				Boats.			Nets.		Seines.		Trap-nets.		Salmon, brls.	Salmon, fresh, lbs.	Cod, cwt.	Haddock, cwt.
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.				
<i>Subdivisions.</i>			\$			\$			\$		\$		\$				
Godbout .....	3	38	1500	9	98	3190	130	6835	6420	590	565	1	275	...	104735	9640	....
Moisie .....	6	164	2595	26	72	3690	127	6643	6168	851	782	...	...	4	243471	8783	....
Mingan .....	1	33	600	5	401	14375	826	5590	3750	1685	2370	5	1400	64	37000	28608	....
Natashquan. ....	5	97	1800	32	95	6230	210	3920	1245	335	415	...	...	27	41070	6180	....
Washeecootai ..	...	...	...	...	18	515	21	710	400	40	30	...	...	41	...	179	....
St. Augustin. ....	...	...	...	...	140	3641	169	5823	3553	1258	983	13	2465	100	...	10046	....
Bonne Espérance	1	40	1000	10	304	15500	615	12440	10300	8300	10830	19	4050	131	...	24320	....
Anticosti. ....	...	...	...	...	130	4045	267	3050	1675	200	100	...	...	21	...	3450	....
Totals . . .	16	372	7495	82	1258	51186	2365	45011	33511	13259	16075	35	8190	388	426276	91206	....

RECAPITULATION FOR

COUNTIES.																	
Bonaventure ....	1	10	100	3	1117	24369	1570	49760	25520	4710	3785	12	300	...	93582	18980	85
Gaspé .....	15	645	20000	120	2855	93810	4525	93342	52649	4910	5333	1	300	8	73682	134695	1023
Saguenay. ....	16	372	7495	82	1258	51186	2365	45011	33511	13259	16075	35	8190	388	426276	91206	...
Totals .....	32	1027	27595	205	5230	169365	8460	188113	111680	22879	25183	48	8790	396	593541	244881	1108

&c., in the **County of Saguenay** and the **Gulf Division**, for the Year 1892.  
**COUNTY OF SAGUENAY.**

KINDS ON FISH.										FISH PRODUCTS.							Fish used for local consumption, brls.	VALUE.	
Halibut, lbs.	Herring, brls.	Herring, smoked, lbs.	Mackerel, brls.	Trout, brls.	Eels, brls.	Cod Tongues and Sounds, brls.	Lobsters, in cans, lbs.	Smelt, lbs.	Seal Skins, No.	Porpoise Skins, No.	Seal Oil, galls.	Porpoise Oil, galls.	Whale Oil, galls.	Cod Oil, galls.	Fish used as bait, brls.	Fish used as manure, brls.			
11570	1433	.....	16	14	..	4	.....	.....	728	2	3518	150	....	4809	383	100	319	78,547	80
7045	532	5500	.....	13	..	19	.....	.....	157	..	525	.....	.....	5578	457	.....	148	95,905	15
1300	290	.....	.....	2	..	.....	2212	.....	2424	..	5870	.....	.....	21830	6340	695	1275	167,992	18
2100	20	.....	.....	5	..	.....	2064	.....	235	..	655	.....	.....	4505	875	.....	262	41,813	21
.....	48	.....	.....	7	..	.....	.....	.....	81	..	243	.....	.....	114	40	.....	47	2,239	55
.....	455	.....	.....	31	..	.....	.....	.....	3983	..	11949	.....	.....	7682	2479	.....	276	66,323	15
.....	1350	.....	.....	24	..	.....	.....	.....	3375	..	13926	.....	.....	24320	5515	.....	1054	149,794	65
14250	605	.....	.....	8	..	.....	172800	.....	271	..	813	.....	.....	2286	1380	160	154	48,676	85
36265	4673	5500	16	104	..	23	177076	.....	11254	2	37499	150	....	71124	17469	955	3535	651,292	54

#### THE GULF DIVISION.

.....	1175	29875	25	2	77	30	170566	30300	.....	.....	.....	.....	.....	12828	5835	63950	9675	221,403	09
78680	6777	.....	4776	28	..	71	780292	82308	7717	52	39250	145	1500	78052	69407	3296	8967	1,043,258	73
36265	4673	5500	16	104	..	23	177076	.....	11254	2	37499	150	....	71124	17469	955	3535	651,292	55
114945	12625	35375	4817	134	77	124	1127934	112608	18971	54	76749	295	1500	162004	92711	68201	22177	1,915,954	36

## RECAPITULATION.

YIELD and Value of the Fisheries of the Gulf Division, Province of Quebec, for the Year 1892.

Kinds of Fish.		Quantity.	Prices.	Value.
			\$ cts.	\$ cts.
Salmon ..	Brls.	396	16 00	6,336 00
" ..	Lbs.	593,540	0 20	118,708 00
Cod ..	Cwt.	244,881	4 50	1,101,964 50
Haddock ..	"	1,108	3 50	3,878 00
Mackerel, salted ..	Brls.	4,817	14 00	67,438 00
Herring ..	"	12,625	4 50	56,812 50
" smoked ..	Lbs.	35,375	0 01	353 75
Halibut ..	"	114,945	0 10	11,494 50
Trout ..	Brls.	134	10 00	1,340 00
Eels ..	"	77	10 00	770 00
Cod tongues and sounds ..	"	124	10 00	1,240 00
Smelt ..	Lbs.	112,608	0 05	5,630 40
Lobsters, cans ..	"	1,127,934	0 14	157,910 76
Seal skins ..	No.	18,971	1 25	23,713 75
Porpoise skins ..	"	54	...	270 00
Fish oil ..	Galls	240,548	0 40	96,219 20
" bait ..	Brls.	92,711	1 50	139,066 50
" manure ..	"	68,201	0 50	34,100 50
" for local consumption, not included above ..	"	22,177	4 00	88,708 00
Total for 1892 ..				1,915,954 36
" 1891 ..				1,606,607 35
Increase ..				309,347 01

## VALUE of the Material employed in the Gulf Fisheries, Season of 1892.

Articles.	Value.
	§ cts.
32 vessels, of 1,027 tonnage. . . . .	27,595 00
5,230 fishing boats. . . . .	169,365 00
188,113 fathoms of nets. . . . .	111,680 00
22,879 " of seines. . . . .	25,183 00
48 trap-nets. . . . .	8,790 00
40 lobster canneries and plant. . . . .	84,000 00
Total. . . . .	426,613 00



## STATISTICS OF FISHERIES IN THE PROVINCE OF QUEBEC,

RETURN of Fishing Stations, Number and Value of Fishing Boats and Nets, Number  
the River St. Lawrence from **Cape Chatte**

FISHING LOCALITIES.	FISHING BOATS.		No. of Fishermen.	KINDS OF NETS USED.					
	No.	Value.		Gill Nets.			Brush Fisheries.		
				No.	Fathoms.	Value.	No.	Value.	
	No.	Value.		No.	Fathoms.	Value.	No.	Value.	
		\$				\$		\$	
Capucins.....	17	255	28	6	108	108			
Mechins.....	40	600	69	38	775	775			
Grosses Roches.....	14	210	22	15	270	270			
Ste. Félicité.....	31	465	48	25	450	450	4	80	
Matane.....	12	180	21	11	239	239	11	220	
Rivière Blanche.....	6	90	13	6	108	108	6	90	
Sandy Bay.....	11	110	11						
Metis.....			7				7	175	
Ste. Flavie.....			2				2	50	
Ste. Luce.....			15	1	80	25	14	350	
Pointe au Père.....			11				11	275	
Rimouski.....			12				12	320	
Sacré-Cœur.....			10				10	200	
Bic.....			10				10	200	
St. Fabien.....			4				4	80	
St. Simon.....			4	4	75	60			
Inland waters of Rimouski.....								\$	
Inland waters of Temiscouata.....									
Notre Dame des Sept Douleurs.....	17	1900	38				26	2600	
Isle aux Pommès.....	1	100	2				1	50	
Trois Pistoles.....			11				7	700	
Isle Verte.....	5	550	19				9	900	
Cacouna.....	2	150	10				10	1000	
Rivière du Loup.....			9				6	900	
St. André.....	1	50	11	2	70	28	12	1750	
Kamouraska.....			14	1	15	6	6	570	
St. Denis.....			38	10	1610	644	4	1125	
Rivière Ouelle.....			54	47	3620	1448	2	300	
Ste. Anne de la Pocatière.....			22						
Inland waters, Co. L'Islet.....									
St. Roch.....			40				1	150	
St. Jean.....			50						
Trois Saumons.....			3						
L'Islet.....			35						
Anse à Gilles.....			4						
Cap St. Ignace.....			16				7	630	
Ile aux Grues.....			24				24	2400	
St. Thomas.....	1	12	21				7	1100	
Berthier.....	4	40	20				4	2050	
St. Valier.....	6	170	2				2	4000	
St. Michel.....	5	55	5				5	2800	
Beaumont.....	9	240	4				4	2700	
Point Lévis.....	11	400	7				6	3050	
Totals.....	193	5577	746	166	7420	4161	234	30815	

## EXCLUSIVE OF THE GULF OF ST. LAWRENCE.

of Men, together with the Yield, Value and Kinds of Fish, &c., on the South Shore of to **Point Lévis**, during the Year 1892.

Bel Fisheries.		KINDS OF FISH.												VALUE.
No.	Value.	Salmon, lbs.	Trout, lbs.	Shad, lbs.	Herring, barrels.	Eels, lbs.	Sturgeon, lbs.	Sardines, barrels.	Whitefish, lbs.	Pickrel, lbs.	Coarse and small fish, barrels.	Fish for manure, barrels.	Porpoise oil, gallons.	
	\$													\$ cts.
					30									*2,312 00
		6066	600		410									135 00
					145									3,118 20
					260									632 50
		2394	1200		100			160						1,650 00
		60			300			1500			100	400	6000	8,448 80
					300			100				100		1,712 00
		540			300									1,350 00
		60			540		120							2,545 20
		6720			30									147 00
		2640			1150		30					500		6,770 80
2	10	860			2350		40					300		11,255 40
		1200			1200	1000						200	400	6,432 00
		1500			1000							10		4,770 00
		600			400									2,100 00
		600			100			40						690 00
														120 00
		12000												1,200 00
		12000												1,200 00
		500		2500	2400		3000	622			3400	200		23,396 00
					10		200	60			2000	10		6,242 00
		330		200	120		200	40			300	20		1,660 00
3	75			1000	300	900	2500	220			200	40		2,932 00
4	100	2400		500	500	800	509	440			800	50		6,583 00
2	50	380		100	210	500	600	120			1000	20		4,463 00
21	470	25		443	11	6850	6420	576			50	139		2,824 78
7	220	200		3016	20	6450	4360	172				120		1,535 56
14	480	400		20000	406	20250	1700	80				60		4,702 00
52	1540	300		10000	40	88400	2000	20				20	4800	18,638 00
22	840			116		23020	17300					20	1200	13,012 10
			7000											700 00
39	3000					20225					125	125		1,651 00
50	3860					50300					135	135		3,490 50
3	160					1000					5	5		77 50
42	3360					35305					114	114		2,517 30
6	560					2700					9	9		193 50
9	460					4800	8150				29			1,058 00
						87400					28			5,328 00
14	660			800		15800	4400		7854	1000	37			2,049 32
17	550	290		3680		25430	2100		12200	1100	17			3,012 60
		1630		8400		24000	3260		32400	2450	18			5,230 50
		619		6750		20200	2800		5148	520	21			2,409 64
		1110		14400		7600	3000		10700	1000	19			2,685 00
		1120		6950		18400	1800		8000	1270	25			2,631 50
307	16395	32774	32800	78854	12332	461330	64420	4150	78102	8340	8642	2787	12000	155,631 70

\*In Matane District 328 brls. codfish, value \$1,312; 10,000 lbs. halibut, value \$1,000; total value, \$2,312.

† At Rivière Ouelle, 96 white whales (marsouins) and at Ste. Anne de la Pocatière, 24, equal to 6,000 gallons of oil.

RETURN of Fishing Stations, Number and Value of Fishing Boats and Nets, Number of the River St. Lawrence from **Quebec**

FISHING LOCALITIES.	FISHING BOATS.		Number of Fishermen.	KINDS OF NETS USED.							
	Number.	Value.		Gill Nets.			Brush Fisheries.		Eel Fisheries.		
				Number.	Fathoms.	Value.	Number.	Value.	Number.	Value.	
<i>Island of Orleans.</i>		\$				\$		\$		\$	
St. Laurent.....			6	6	2100	1500					
St. Jean.....			6	5	970	665			1	50	
St. François (South) .....			16	2	600	600			14	892	
Argentenay.....			9						9	510	
St. François (North).....			5				5	160			
Ste. Famille.....			10	1	220	200	5	160	4	120	
St. Pierre.....			7	7	1540	1400					
<i>North Coast.</i>											
Chateau Richer .....			5	2	500	400	3	62			
Ste. Anne.....			5				1	20	4	70	
St. Joachim.....			25						25	2186	
Isles Madame and aux Réaux.....			3	2	400	240			1	100	
St. Siméon.....			5	2	230	20	3	20			
Ste. Fidèle.....			7	2	200	20	5	30			
Malbaie.....			19	2	250	25	17	85			
Bay St. Paul and neighbouring lakes in the County of Charlevoix.....			35						35	3000	
Ile aux Coudres.....			47				20	210	47	300	
Les Eboulements.....			24				21	240	24	230	
St. Irénée.....			18				18	200			
<i>Saguenay Division.</i>											
Rivière aux Canards.....	2	30	2				2	30			
Anse Ste. Catherine.....	2	30	2				2	40			
Tadoussac.....	3	45	5				1	20			
Pointe Rouge.....	1	100	3	2	200	150					
Moulin Baude.....	1	20	1	1	80	50					
Anse Puante.....	1	15	1	1	100	60					
Pointe à la Cariole.....	1	20	1	1	100	50					
Anse aux Pilotes.....	2	40	2	2	125	80					
Bon Désir.....	1	15	1	1	75	50					
Escoumains.....	4	50	5	4	400	200	1	20			
Baie des Bacons.....			3				3	60			
Sault au Mouton.....			1				1	20			
Mille Vaches.....			3				3	60			
Pointe à Boisvert.....	1	15	1	1	130	60					
Portneuf.....	2	30	2	2	150	75					
Sault au Cochon.....	1	15	1	1	120	60					
Colombier.....	3	45	3	3	300	150					
Islets Jérémie.....			1				1	20			
Bersimis.....	1	15	1	1	160	80					
Inland waters.....											
<i>Lake St. John Division.</i>			170	170	6800	950					
Totals.....	26	485	461	221	15750	7085	112	1457	164	7458	

of Men, together with the Yield, Value and Kinds of Fish, &c., on the North Shore to Bersimis, during the Year 1892.

KINDS OF FISH.										Coarse and small fish, barrels.	Fish for manure, barrels.	VALUE.	
Salmon, lbs.	Trout, lbs.	Shad, lbs.	Herring, barrels.	Eels, lbs.	Sturgeon, lbs.	Sardines, barrels.	Whitefish, lbs.	Pickrel, lbs.				\$	cts.
1340		6350		11900			4480						1,721 40
1350		5100		14400			7320						2,025 60
480		2000		21600			3600						1,800 00
				10800			1900						800 00
				1200									72 00
24		100		4250	1800								373 80
216		730		14800	200								987 00
30		140		4600	3800		7920	2340	15				1,314 00
				2400			960	360	2				244 80
				36350									2,181 00
560		1750		6400	800		3120	660					931 60
375	1200		4			10			3		100		302 00
180	500		17			30			4		300		414 50
225	3000		40			50			10		600		1,005 00
	45000			15000									5,400 00
				4000					10		30		483 00
			4	850		20			12		500		415 00
			10			30			10		400		365 00
360			2						2		10		92 00
400			5						3		35		43,369 00
			5								75		60 00
7000													1,400 00
3000													600 00
1200													240 00
3000													600 00
5360													1,072 00
1500													300 00
7240			3			5					30		1,491 50
200			4			14					50		125 00
120			1			2					6		37 50
100			6			10					60		107 00
3000													600 00
5280													1,056 00
3000													600 00
5800													1,160 00
200			3			1					15		64 00
1240													248 00
	25000												2,500 00
	10000						20000	50000	480				13,540 00
52780	84700	16170	104	149050	6600	172	49300	53360	551		2211		50,097 70

\* Add 7 white whales (marsouins), yielding 350 gallons of oil; total value, \$168.

† At Ste. Catherine and vicinity, 135 white whales (marsouins), yielding 6,750 galls. of oil; total value, \$3,240.

‡ Add 100,000 lbs. winninish, 20,000 lbs. pike; total value, \$7,000.



RETURN of Fishing Stations, Number and Value of Fishing Boats and Nets, Number  
extending from **Quebec** to **Upper**

DIVISIONS.	FISHING BOATS.		No. of Fishermen.	KINDS OF NETS USED.								
				Gill Nets.			Seines.		Hoop Nets		Eel Fisheries	
				No.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.	No.	Value.
	No.	Value.		No.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.	No.	Value.
		£				£		£		£		£
Sherbrooke and Megantic . . . . .			60									
Magog and Brome . . . . .			30									
Missisquoi Bay . . . . .	13	166	35				1020	420				
Iberville, including Richelieu River . . . . .	61	696	78				310	280	127	1780	3	8000
Chateauguay . . . . .	60	1080	120				268	210				
Beauharnois . . . . .	44	660	90	26	300	312	280	650				
Laprairie to Verchères, including Montreal and vicinity . . . . .	46	460	60				420	8400				
Richelieu County and St. Francis River . . . . .	90	630	64	31	600	130	950	560				
Yamaska County and River . . . . .	21	125	30								2	75
Nicolet . . . . .	22	158	24	3	35	300	160	100			22	55
Three Rivers* . . . . .	15	150	15									
Berthier, Joliette, Montcalm . . . . .	35	280	35				600	360				
Terrebonne . . . . .	45	270	70	3	37	22	184	185				
Lake of Two Mountains and Isle Perrot . . . . .	15	140	18	56	840	125						
River Beaudet . . . . .			5	2	38	25	100	75				
Lower Ottawa . . . . .	15	150	15	50	550	250						
Upper Ottawa . . . . .	73	765	73	136	1100	525						
Gatineau Lakes . . . . .												
	554	5730	822	307	3500	1689	4292	11240	127	1780	27	8130

\* Estimated. The total value includes \$7,500 for 15,000 bushels of tom-cods.

of Men, together with the Yield, Value and Kinds of Fish, &c., within the District  
**Ottawa**, during the Year 1892.

KINDS OF FISH.									Coarse and small fish, lbs.	VALUE.	
Trout, lbs.	Shad, lbs.	Eels, lbs.	Sturgeon, lbs.	Whitefish, lbs.	Maskinongé, lbs.	Bass, lbs.	Pickereel, lbs.	Pike, lbs.		\$	cts.
48100	4000	8000	5500	3500	16800	17100	18000	17200	26000	10,714	00
33000		2000				12000	1000		80000	6,590	00
	9750						23090		33400	2,741	50
		31400	300			1600	3050	3900	116100	5,828	50
		12000	50000		2000	30000	20000	12000	100000	10,240	00
		39300	30300		3600	6350	9500	18430	163400	11,071	50
	500	20000	11000		10000	5000	18000	30000	60000	6,930	00
		6200	200		600	500	3500	1200	20000	1,285	00
		22300	4300	150	6700	2500	4635	11375	71800	5,114	50
	600	16450	5850	250	700	1000	1300	1240	120000	5,547	00
20000	500	10000	3000				5000	10000	20000	11,660	00
30000	1500	500	1500	300	200	100	300	4000	100000	6,467	00
50000		1275	1070		1000	3450	3500	3000		5,732	70
		2500	2000		4800	2320	8300	8000	31300	2,451	20
		28000	800		1000	1200	700	900		1,940	00
1250	2100	2400	21000	2250	1200	800	7000	14000	50000	4,505	00
		2600	6500	160	3850	2960	6300	8400	26600	2,500	00
95600				9250		10250	6300	50000		13,730	00
277950	24350	204925	142320	15860	52450	97130	139475	193645	1018600	115,048	30

## COMPARATIVE RECAPITULATION

Of the Quantity and Value of the different Fisheries from **Cape Chatte to Point Lévis**, in 1891 and 1892.

Kinds of Fish.	Prices for 1892.	1891.		1892.	
		Quantity.	Value.	Quantity.	Value.
	\$ cts.		\$ cts.		\$ cts.
Shad .....	Lbs. 0 06	20,993	1,255 98	78,854	4,731 24
Eels .....	" 0 06	279,261	16,755 66	461,330	27,679 80
Herring .....	Brls. 4 50	22,130	99,585 00	12,332	55,494 00
Sturgeon .....	Lbs. 0 06	65,851	3,951 06	64,420	3,865 20
Sardines .....	Brls. 3 00	6,848	20,544 00	4,150	12,450 00
Trout .....	Lbs. 0 10	32,000	3,200 00	32,800	3,280 00
Salmon .....	" 0 20	38,610	7,722 90	32,774	6,554 80
Whitefish and bar fish .....	" 0 08	39,570	3,165 60	78,102	6,248 16
Pickrel .....	" 0 05	5,703	285 15	8,340	417 00
Coarse and mixed fish .....	Brls. 3 00	9,482	28,446 00	8,642	25,926 00
Porpoise skins (marsouins) .....	No. 4 00	21	84 00	120	480 00
" oil .....	Galls. 0 40	2,250	900 00	12,000	4,800 00
Fish for manure .....	Brls. 0 50	8,036	4,018 00	2,785	1,393 50
Cod .....	"			328	1,312 00
Halibut .....	Lbs.			10,000	1,000 00
Total value of the fisheries .....			189,912 45		155,631 70
Decrease .....					34,280 75

## COMPARATIVE RECAPITULATION

Of the Quantity and Value of the different Fisheries from **Quebec to Bersimis**, in 1891 and 1892.

Kinds of Fish.	Prices for 1892.	1891.		1892.	
		Quantity.	Value.	Quantity.	Value.
	\$ cts.		\$ cts.		\$ cts.
Shad .....	Lbs. 0 06	718	43 08	16,170	970 20
Eels .....	" 0 06	114,360	681 60	149,050	8,943 00
Herring .....	Brls. 4 50	240	1,080 00	104	468 00
Sturgeon .....	Lbs. 0 06	8,800	528 00	6,600	396 00
Sardines .....	Brls. 3 00	375	1,125 00	172	516 00
Salmon .....	Lbs. 0 20	69,030	13,806 00	52,780	10,556 00
Trout .....	" 0 10	98,000	9,800 00	84,700	8,470 00
Pickrel .....	" 0 05	59,268	2,963 40	53,360	2,668 00
Pike .....	" 0 05	24,000	1,200 00	20,000	1,000 00
Whitefish .....	" 0 08	38,672	3,093 76	49,300	3,944 00
Winninich .....	" 0 06	100,000	6,000 00	100,000	6,000 00
Coarse and mixed fish .....	Brls. 3 00	780	2,340 00	551	1,653 00
Fish as manure .....	" 0 50	10,900	4,450 00	2,211	1,105 50
Porpoise skins (marsouins) .....	No. 4 00	280	1,120 00	142	568 00
" oil .....	Galls. 0 40	16,800	6,721 00	7,100	2,840 00
Total value of the fisheries .....			62,130 84		50,097 70
Decrease .....					12,033 14

## COMPARATIVE RECAPITULATION

Of the Quantity and Value of the different Fisheries, from Quebec to Upper Ottawa, in 1891 and 1892.

Kinds of Fish.		Prices.	1891.		1892.	
			Quantity.	Value.	Quantity.	Value.
		\$ cts.		\$ cts.		\$ cts.
Shad.....	Lbs.	0 06	34,790	2,087 40	24,350	1,461 00
Eels.....	"	0 06	396,080	23,764 80	204,925	12,295 50
Sturgeon.....	"	0 06	194,350	11,661 00	142,320	8,539 20
Trout.....	"	0 10	297,350	29,735 08	277,950	27,795 00
Whitefish.....	"	— 0 08	37,320	2,985 60	15,860	1,268 80
Maskinongé.....	"	0 06	87,535	5,252 10	52,450	3,147 00
Bass.....	"	0 06	114,370	6,862 20	97,130	5,827 80
Pickarel.....	"	0 05	186,630	9,331 50	139,475	6,973 75
Pike.....	"	0 05	260,710	13,035 50	193,645	9,682 25
Mixed fish.....	"	0 03	1,267,100	38,013 00	1,018,600	30,558 00
Tom cod.....	Bush.	0 50	15,809	7,500 00	15,000	7,500 00
Total value of the fisheries.....				150,228 10		115,048 30
Decrease.....						35,179 80

## RECAPITULATION.

YIELD and Value of the Fisheries of the Province of Quebec (*exclusive of the Gulf Division*) for 1892.

Kinds of Fish.		Quantity.	Value.
			\$ cts.
Shad.....	Lbs.	119,374	7,162 44
Eels.....	"	815,305	48,918 30
Herring.....	Brls.	12,436	55,962 00
Sturgeon.....	Lbs.	213,340	12,800 40
Sardines.....	Brls.	4,322	12,966 00
Trout.....	Lbs.	395,450	39,545 00
Salmon.....	"	85,554	17,110 80
Pickarel.....	"	201,175	10,058 75
Pike.....	"	313,645	10,682 25
Whitefish.....	"	143,262	11,460 96
Maskinongé.....	"	52,450	3,147 00
Bass.....	"	97,130	5,827 80
Tom cod.....	Bush.	15,000	7,500 00
Winninish.....	Lbs.	100,000	6,000 00
Mixed fish.....	Brls.	14,286	58,137 00
Fish as manure.....	"	4,996	2,499 00
Porpoise skins.....	No.	272	1,048 00
oil.....	Galls.	19,100	7,640 00
Halibut.....	Lbs.	10,000	1,000 00
Cod.....	Brls.	328	1,312 00
Total in 1892.....			320,777 70
" 1891.....			397,979 39
Decrease.....			77,201 69





## STATEMENT

Of Vessels and Boats and other Fishing Material employed in the whole Province  
of Quebec, for 1892.

Articles.	Value.
	S cts.
32 vessels, of 1,027 tons.....	27,595 00
6,003 boats.....	181,157 00
241,954 fathoms of nets and seines.....	161,038 00
48 trap-nets.....	8,790 00
46 lobster canneries.....	84,000 00
47,000 " traps.....	
844 eel and brush weirs.....	64,255 00
127 hoop-nets.....	1,780 00
Total.....	528,615 00

## APPENDIX E.

## MANITOBA AND NORTH-WEST TERRITORIES.

ANNUAL REPORT OF INSPECTOR ALEXANDER McQUEEN ON THE  
FISHERIES OF MANITOBA, FOR THE YEAR 1892.

WINNIPEG, 31st December, 1892.

Hon. CHARLES H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to forward you a supplementary report on the fisheries of Manitoba, so as to complete the record of fishing operations for the year ending 31st December, 1892. My previous report of the 4th of October last fully covered all matters pertaining to summer fishing and the catch by the commercial fishermen in Lake Winnipeg. It therefore remains now to give an account of the work done by winter fishermen, and give statistics of the catch under domestic licenses. In addition to this, reference will be made to infractions of the regulations, and the penalties imposed upon those violating them.

## WINTER FISHING.

Winter fishing was carried on this year at the usual fishing stations on Lakes Winnipeg, Manitoba, Dauphin, Winnipegosis and St. Martin. There were two hundred and thirty domestic licenses issued for the year 1892, the greater portion of which were used on Lakes Manitoba and St. Martin. These were operated chiefly by Indians, Half-breeds and Icelanders, the latter nearly all on Lake Winnipeg. The catch aggregated for the year 3,425,155 lbs., valued at \$102,192.73. Of this quantity 1,020,125 lbs. were sold to the trade and the remainder used for home consumption. The catch is somewhat smaller than that of the previous year, but this is accounted for from the fact that the close season for whitefish was extended from the 1st of December to the 15th. When the extension was made no provision was made for catching pickerel, pike, &c., during the whitefish close season, and the fishermen were delighted when a subsequent order was issued granting settlers this privilege. Winter fishing gives employment to a considerable number of men and teams in driving the fish to market. In a great many cases dealers purchase from the fishermen direct at the several stations, paying them according to the distance from market, from 3 cents to 4½ cents per pound for whitefish, 2½ cents to 4 cents for pickerel, and 1 cent to 2 cents per pound for pike. Tullibee are caught in large numbers during winter, and are sold at about the same price as pike. The appliances for winter fishing are very simple. Holes are cut in the ice, and the gill nets are stretched underneath between them, and held in position by stakes. They are usually left in the water two or three days, when they are taken up, emptied, and replaced in position. The fish freeze upon the ice as they are caught, and are shipped to market in this state.

## INFRACTIONS OF THE REGULATIONS.

There have been a number of instances of violations of the close season for whitefish, and also for fishing with illegal nets. Three persons were fined \$5 each for fishing for whitefish at Black Island, lake Winnipeg, during the close season. Several other nets, the owners of which could not be found, were confiscated and destroyed. Over-

seer Martineau had seven men arraigned before a magistrate for fishing whitefish during close season at Birch Island, Lake Manitoba, but six of them were released on the plea of poverty and ignorance of the close season regulations. The other, who had no license, had his fish and nets confiscated and sold. Eight gill nets which I found set in the Red River during close season were seized and destroyed, also three seines of illegal-sized mesh.

## OVERSEERS' REPORTS.

The overseers and guardians during the year, with two exceptions, discharged their duties satisfactory. Guardians Archer and Jonsson having refused to enforce the new regulations, were relieved of their duties about the close of the year, and Charles Wood and William Hughes appointed in their stead. Subjoined is a synopsis of overseers' reports from the different districts.

## ST. LAURENT, LAKE MANITOBA.

*Guardian Devlin* who has charge of the fishing stations on the east side of Lake Manitoba in the vicinity of St. Laurent, reports that the close seasons were strictly observed. In this district, there were sold to the trade:—

	Lbs.	Value.
Whitefish .....	65,400	\$2,943 00
Pickarel .....	98,900	3,708 75
Pike .....	197,500	2,962 50
Tullibee .....	9,700	145 50
	<u>371,400</u>	<u>9,759 75</u>

In addition, he reports 52,500 lbs. of mixed fish, valued at \$1,837.50, used for home consumption, making a total catch of 423,900 lbs., valued at \$11,527.25.

The number of men employed and the quantity of gill-nets used, were as follows:—

	Men.	Fathoms.	Value.
Clandeboyce .....	15	2,500	\$240 00
St. Laurent and Lake Francis .....	30	3,000	309 00
Oak Point to Long Point .....	35	4,500	450 00
	<u>80</u>	<u>10,000</u>	<u>\$990 00</u>

There were no boats of any kind used for fishing in this district.

The guardian reports that Blackwood Bros. of Winnipeg, are preparing to erect a freezer and ice house at St. Laurent or Clandeboyce Bay next season, with a view to preserve fish.

## THE NARROWS, LAKE MANITOBA.

*Overseer Martineau* reports the close seasons well observed at the different fishing stations at the Narrows of Lake Manitoba, with the exception of the fishing at Birch and Sugar Islands, where it was found that several parties were fishing with nets contrary to the fishery regulations. Forty-one nets were seized and 92 whitefish found therein during the close season. The owners were brought before a magistrate who released those having licenses, owing to their ignorance of the law, and the using of illegal sized mesh-nets to catch coarse fish. Those who were found fishing without a license had their fish and nets seized and sold at public auction. He states that this will have a salutary effect in future in making fishermen comply with the regulations.

In interviewing fishermen on both sides of Lake Manitoba, they all complain that the close season for whitefish is too long, and desire it amended so as to extend from the 1st of October to the 30th of November of each year. He reports that no whitefish have ever been caught with spawn in them in his district in December.

Fishing operations for the trade are always carried on in winter. During the rest of the year the settlers only fish for their own use.



The sale of fish to the trade in this district was as follows :—

	Lbs.	Value.
Whitefish .....	46,015	\$1,384 20
Pickereel .....	6,350	127 00
Pike .....	50,135	250 67
Tullibee .....	2,100	52 50
Gold-eyes .....	9,700	97 00
	<u>114,300</u>	<u>\$1,911 37</u>

In addition to above, he reports 146,000 lbs. mixed fish of all kinds used for home consumption, and valued at \$2,530.75.

He reports fish of all kinds plentiful during the year. The catch, however, owing to a strict observance of the fishery regulations and other causes, was smaller than that of the previous year. He finds it difficult to furnish an estimate of home consumption, owing to the Indians and other fishermen being reluctant to give the desired information.

The ordinary gill-nets are the only kind of nets used in this district. The quantity of twine used amounted to 4,274 fathoms, valued at \$427.40. They also used 33 boats or skiffs, valued at from \$10 to \$25 each. The carrying capacity varies from 300 to 8,000 pounds. Sixty-eight fishermen were engaged during the year in fishing.

He reports in regard to the improvements made by the Local Government at the mouths of ditches running into Lake Manitoba, and states that 10 new gates were constructed on the east shore and 17 on the west shore of the lake. The gates vary in size from 12 to 30 feet long and 4 feet high. These gates were built to prevent fish from ascending into the swamps and meadows during high water in the spring, where, when the water receded, they would be left in very large numbers dead on the prairie.

#### FAIRFORD LAKE, MANITOBA.

*Guardian Wm. Archer*, who has had charge of this district up to nearly the close of the year, reports that the catch of fish was about the same as in the previous year. The whitefish catch was a little larger. He reports the close season as being well observed, except that the Indians fished under special permit from the department. There are three bands of Indians, and they comprise the greater portion of the fishermen in this district. There were 87 men engaged in fishing during the year, of whom 25 were licensed fishermen. They operated 80 small skiffs and canoes, valued at \$800, and used 5,000 fathoms of gill-net, valued at \$500.

He estimates the catch for the year to be as follows :—

	Lbs.	Value.
Whitefish .....	235,000	\$ 7,050 00
Pickereel .....	30,525	610 70
Pike .....	22,300	223 00
Mixed fish .....	326,100	3,226 00
	<u>613,935</u>	<u>\$11,144 70</u>

The whole of this catch was used for home consumption, except 43,000 lbs. of whitefish and 10,835 lbs. of pickereel, which were sold to the trade.

#### WATER HEN RIVER, LAKE WINNIPEGOSIS.

*Guardian J. H. Adam* submits his report and tabular statement on the fisheries in his district. His report is not as full and complete as usual, he having been prevented from visiting a number of places in his district owing to serious illness in his family. He, however, states that all kinds of fish were found in abundance by fishermen, and Lake Winnipegosis gives great promise for the future. The catch and sale of whitefish was not as large as last year, owing to the extension of the close season, which has lessened the catch in his district this year. The Indians were permitted to fish for a few days at the beginning of the close season, as they were dependent on the fish they caught for a livelihood. The close season, with this exception, was strictly observed.

The number of men employed in fishing were 100, of whom 39 were licensed fishermen. There were 72 small boats and canoes, valued at \$720, used in fishing. The quantity of gill nets used was 7,900 fathoms, valued at \$1,152. He reports the catch of all kinds of fish during the past year to be as follows :—

	Lbs.	Value.
Whitefish.....	241,000	\$ 4,820 00
Pickereel.....	44,000	880 00
Pike.....	82,500	412 50
Mixed fish.....	445,000	4,450 00
	<u>812,500</u>	<u>\$10,562 50</u>

Of this quantity, 90,000 lbs. of whitefish, 20,000 lbs. of pickereel, and 30,000 lbs. of pike were sold to the trade.

#### FORT ALEXANDER, LAKE WINNIPEG.

*Guardian J. Wood*, who has charge of the east side of Lake Winnipeg, from the Red River to Loon Straits, reports fish as plentiful as usual, and the catch would have been much greater had the close season not been changed. He reports that no commercial licenses were issued in his district. There are five bands of Indians in the district, the members of which were allowed to fish for their own use with permits from the department. The fishery regulations were fairly well observed during the year, except that three men whom he found fishing during the close season were fined \$5 each. He also reports having confiscated and destroyed several gill-nets whose owners could not be found. There are two saw-mills in the district, neither of which have been operated for over a year, but the refuse keeps falling into the Bad Throat River, upon which they are situated. He has had considerable trouble in keeping it out of the stream. The catch of fish for the year was as follows :—

	Lbs.	Value.
Whitefish.....	110,800	\$ 4,432 00
Pickereel.....	79,950	2,798 00
Pike.....	41,900	419 00
Sturgeon.....	43,000	2,150 00
Tullibee.....	85,000	850 00
Mixed fish.....	90,050	1,801 00
	<u>450,700</u>	<u>\$12,450 00</u>

The number of men employed was 102, who operated 102 skiffs and canoes, valued at \$1,102. They used 6,960 fathoms of gill net, valued at \$604.

#### GIMLI DISTRICT, LAKE WINNIPEG.

*Guardian Stefan Jonsson*, who was in charge of this district up to the 1st of December, when he was succeeded by a new guardian, Wm. Hughes, reports fishing good during the year in his locality. The catch of whitefish was not as large as in previous years, owing to the extension of the close season, but this species of fish, he states, was more abundant than in the three previous years. The best time for winter fishing here is from the end of the close season till the 1st of January, as the fish then disappear into deep water, and the fishermen are not able to follow them, as the ice gets so thick that it is almost impossible to set nets. He reports pickereel very plentiful during the season, and that fishermen were devoting more attention to them, as there was a good demand and better prices for them than ever before. Pike were also very plentiful, but not being marketable were principally used for home consumption. Tullibee were scarce. Subjoined is a summary of the catch in his district :—

	Lbs.	Value.
Whitefish.....	75,000	\$ 3,000 00
Pickereel.....	46,820	1,628 70
Pike.....	11,000	110 00
Tullibee.....	65,000	650 00
Mixed fish.....	65,000	1,300 00
	<u>262,820</u>	<u>\$6,688 70</u>

In this district there were sold to the trade the following quantity of fish :—

	Lbs.	Value.
Whitefish.....	73,800	\$2,952 00
Pickarel.....	40,820	1,428 70
Pike.....	4,700	47 00
Tullibee.....	40,820	408 20
	<u>160,140</u>	<u>\$4,835 90</u>

There were 57 men engaged in fishing during the year, operating 24 skiffs, valued at \$196. They used 8,690 fathoms of gill-net, valued at \$857.

#### BEREN'S RIVER, LAKE WINNIPEG.

*Guardian J. B. Johnson*, who has charge of both sides of the lake, in the Beren's River district, reports all kinds of fish very abundant during the year, particularly the inferior class of fish which afforded a good source of supply for food. The whitefish in the fall, however, show a slight falling off of the catch in some parts. At Mossy Point, Beren's River and Pigeon River it is below that of the previous year; but at Beaver Creek and Split Rock Creek compares favourably with that of last year. At Rabbit Point and Fisher River the catch was not so large, but this is accounted for from the fact that the Indians found employment from lumbermen at the former place, and, therefore, were not obliged to fish as much as in former years. Winter fishing at Beren's River this year was better than it has been for some years previous, and the same may be said of Rabbit Point; while at Bull's Head and Humber Bay they were rather scarce. He reports some dissatisfaction among the settlers owing to the length of the close season for whitefish, which deprives them of fifteen days of the best time for winter fishing. He further reports sturgeon as being very abundant, and recommends the advisability of putting the close season on this species of fish back to the old dates, from the 1st of May to the 15th of June, as the gradual falling off of whitefish in places frequented by sturgeon is due more to the depredations committed by this voracious fish, than to any other cause. He summarizes the catch in his district as follows :—

	Lbs.	Value.
Whitefish.....	271,300	\$9,495 50
Pickarel.....	78,500	1,962 50
Pike.....	7,500	75 00
Sturgeon.....	48,000	1,680 00
Mixed fish.....	195,000	1,950 00
	<u>600,300</u>	<u>\$15,163 00</u>

This statement does not include the catch of the commercial fishermen who operate in his district during the summer months. Of the above quantity 62,500 lbs. of whitefish and 78,500 lbs. of pickerel were sold to the trade, the remainder together with the sturgeon, pike and mixed fish were used for home consumption. The number of men employed in domestic fishing during the year was 87; 27 boats were used during the summer and fall, valued at \$270. There were 8,760 fathoms of gill net used, valued at \$876.

#### CONCLUSION.

A summary of the entire catch shows an increase of 585,557 lbs. over that of the previous year, and this increase is altogether in whitefish, caught chiefly by the commercial fishermen in Lake Winnipeg, where that species of fish was unusually plentiful last summer. There was a slight falling off in the catch of coarse fish under domestic licenses, caused by the lengthening of the close season, and the prohibiting in the early part thereof, of all kinds of fishing during that period. The recapitulation hereunder, gives not only the catch referred to in this supplementary report, but also that contained in the first report sent to the department in October last.

## RECAPITULATION of the Yield and Value of Fisheries in Manitoba.

	Lbs.	Value.
Whitefish.....	4,354,013	\$239,470 72
Pickarel.....	592,593	23,703 72
Pike.....	433,895	8,677 90
Sturgeon.....	93,090	4,654 50
Tullibee.....	161,800	3,236 00
Mixed fish.....	1,496,200	14,962 00
	<u>7,131,591</u>	<u>\$294,704 84</u>

I have the honour to be, sir, your obedient servant,

ALEX. McQUEEN,  
*Inspector of Fisheries.*



RETURN of the Number and Value of Vessels, Boats and Fishing Material, the Number from **Lake Winnipeg** to **Lake Winnipegosis**,

DISTRICT.	VESSELS AND BOATS EMPLOYED.							
	Vessels or Tugs.				Boats.			Gill Nets.
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.
St. Laurent and Shoal Lake.....			¢			¢	80	10000
The Narrows and Ebb and Flow Lake to Sandy Bay.....					33	561	68	4274
Lake St. Martin and Fairford River to Steep Rock.....					80	800	87	5000
Water Hen River, Lakes Dauphin and Winnipegosis.....					72	720	100	7900
Mouth of Red River to Loon Straits.....					102	1102	102	6900
Gimli District to Grindstone Point....					24	196	57	8690
Berens and Fisher Rivers to Bull Head.....					57	830	87	8760
Red River, Sturgeon Bay, Berens, Reindeer and Selkirk Islands.....	7	193	36000	35	30	6475	134	45000
Totals.....	7	193	36000	35	398	10684	715	96524

N.B.—Particulars regarding Berens River District, &c., will be found in my report of 4th

of Men employed, &c., with the Kinds and Quantities of Fish, in the District extending in Manitoba, for the Year 1892.

FISHING MATERIALS.						KINDS OF FISH.						VALUE.
Seines.		Pound Nets.		Hoop Nets		Whitefish, lbs.	Pickerel or Doré, lbs.	Pike, lbs.	Sturgeon, lbs.	Tullibee, lbs.	Mixed fish, lbs.	
Fathoms.	Value.	No.	Value.	No.	Value.							
	¢		¢		¢							\$ cts.
						65400	98900	197500	.....	9700	52500	12,222 00
						46015	6350	50135	.....	2100	156300	5,392 53
						235000	30535	22300	.....		326100	17,853 40
						241000	44000	82500	.....		445000	21,115 00
						110800	79950	41900	43000	85000	90050	14,880 50
						75000	46820	11000	.....	65000	65000	8,167 80
						271300	78500	7500	48000	....	195000	22,561 50
120	150	2	1000	....	....	3309498	207538	21060	2090	.....	166250	192,512 11
120	150	2	1000	....	....	4354013	592593	433895	93090	161800	1496200	294,704 84

October, 1892.

NORTH-WEST TERRITORIES.

FORT QU'APPELLE, ASSA., 31st December, 1892

Hon. CHARLES H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—I have the honour to submit a synopsis of the reports of the different overseers and guardians, which, owing to the fact of their not coming in in time, could not be appended to the advance report. The returns are necessarily incomplete, and at best are only approximate; but great care has been taken not to exceed the actual catch. You will doubtless observe that in many cases no return is made other than of whitefish; but it was found to be impossible to make an estimate at all approaching accuracy with the means at present at our disposal; so that many tons of fish caught, such as lake trout, tullibee, pike, pickerel, gold-eyes, sturgeon, etc., do not appear in the returns. For obvious reasons no return is made of the catch in southern Alberta, which consists principally of river and mountain trout.

PRINCE ALBERT DISTRICT.

*Acting Fishery Overseer R. S. Cook*, who resides in Prince Albert, reports a very marked improvement in the observance of the fishery regulations in the settled portions of the district; but there has been no attempt made by the different bands of Indians to observe the close seasons.

Owing to the great depth of snow this winter, very little fishing will be done by fishermen from the settlements, as the trails are impassable.

Eight "domestic licenses" and thirty-two free permits were issued during the year; three nets were seized and destroyed, one fine imposed and the fish confiscated.

The resident population north of the North Saskatchewan River is about five thousand, and these people, together with their train dogs, are largely, and in many cases wholly, dependent on fish for a livelihood, the daily ration of whitefish being as follows: four fish to each man two to each woman, one to each child, and two to each dog. This will give some idea of the enormous consumption of fish; but nature seems to have anticipated the wants of these poor people by placing an almost unlimited supply of good fish in the thousands of beautiful lakes scattered throughout this vast territory, comprising about 40,000 square miles. Although a good deal of fishing is done yearly by fishermen from the different settlements south of the river, no export trade has been opened up in fresh, dried, or salted fish. Attached hereto is an estimate of the catch of all kinds of fish during the past year, but owing to the vast extent of the district, and the unreliable sources of information it cannot be relied upon.

BATTLEFORD DISTRICT.

*Special Guardian H. Richardson*, who lives in Battleford, reports that Jackfish Lake contains whitefish, tullibee, pike, pickerel and suckers; but most of the whitefish have been caught out. Turtle Lake has the same kinds of fish; but the whitefish are more plentiful than in Jackfish Lake, and of better quality. Cold Lake, the finest sheet of water in the district, beside the ordinary kinds of fish, contains large fine lake trout. Guardian Richardson gives the following estimate as the catch of whitefish for the past season, but gives no return of other fish:—

	Lbs.	Value.
Jackfish Lake, whitefish .....	40,000	\$2,200 00
Turtle Lake " .....	80,000	4,400 00
	<u>120,000</u>	<u>\$6,600 00</u>

## LAC LA BICHE DISTRICT.

*Fishery Overseer John Ross*, who is Indian agent at Saddle Lake, reports that the principal part of the fishing was done before the close season commenced, and that the catch was better than last year. At Lac la Biche the principal fishing was done by Half-breeds and enfranchised Indians; by Treaty Indians in the other lakes named. He gives the following as an approximate estimate of the amount of fish caught—white-fish only :—

	Lbs.	Value.
Beaver and neighbouring lakes .....	51,000	\$ 2,805 00
Whitefish and Goodfish Lakes .....	6,000	330 00
Floating Stone and Pine Butte Lakes .....	6,000	330 00
Saddle Lake .....	2,100	115 50
Lac la Biche (return received from other sources) .....	150,000	7,500 00
Total .....	<u>215,100</u>	<u>\$11,080 50</u>

## EDMONTON DISTRICT.

*Acting Overseer A. E. Johnston* resigned, as he was leaving for the east, and the district is now without a regular officer. The following is an estimate of the catch of whitefish, which were taken almost exclusively by Indians and Half-breeds :—

	Lbs.	Value.
Lac Ste. Anne .....	70,000	\$ 3,850 00
White Whale Lake .....	120,000	6,600 00
Total .....	<u>190,000</u>	<u>\$10,450 00</u>

## PIGEON LAKE.

*Guardian Donald Whitford*, who resides at Hollbroke, Alta., reports the fish in Pigeon Lake less plentiful than in former years; and he believes the cause to be fishing during the spawning season. The following is his estimate of the number of whitefish killed during 1892 :—

	Lbs.	Value.
By Indians .....	36,000	\$1,980 00
By Whites and Half-breeds .....	84,000	4,620 00
Total .....	<u>120,000</u>	<u>\$6,600 00</u>

## EAGLE QUILL LAKE.

*Guardian W. G. Knight*, of Swift Current, Assa., reports that in 1890 a number of Half-breeds took about 10 tons of whitefish, nearly all of which were killed in November and December (the spawning season). In 1891 they killed about 7 tons. No fishing whatever has been done this season (1892). Three years ago whitefish up to  $3\frac{1}{4}$  lbs. weight were not at all uncommon, in fact the majority for the market would run from 2 to  $3\frac{1}{4}$  lbs. in weight. Last year the great majority of the fish weighed from 1 to  $1\frac{1}{4}$  pounds each, the Half-breeds complaining "it hardly paid for the trouble of catching." Without doubt the lake is being rapidly depleted of fish from the reckless way in which they have been destroyed. The lake is about five miles long by one mile wide.

## LONG LAKE DISTRICT.

*Overseer John Foster*, Silton P. O., Assa., reports that the fishing season for 1892 opened exceptionally good, the catch for the first six weeks being very large. During the month of February it fell off, but after that month it improved, and continued good until the ice broke up in April. "From observation I have made this year I am more convinced than ever that the whitefish in Long Lake are spawning up to the 1st January, and that to protect the fish the close season should be extended to that date." The catch for the season is as under :—



	Lbs.	Value.
Whitefish.....	18,000	\$900 00
Pickarel.....	5,000	150 00
Pike.....	15,000	450 00
Mixed fish.....	8,000	80 00
Total.....	46,000	\$1,580 00
Total Indian catch.....	Lbs. 22,000	
Number of gill-nets used, 96.....	}	\$430 00
"    seine-nets used, 1.....		

The summer fishing is not carried on so extensively by either whites or Indians as the winter fishing. During the year one person was fined and forfeited his license, and another had his net confiscated for infraction of the fishery laws.

#### QU'APPELLE LAKES.

*Guardian John Leader, jr.*, who lives on the north shore of Wyosung Lake, reports that he has fished a number of years in the Qu'Appelle Lakes, and has had a good opportunity to know what state and condition the lakes are in. Six years ago the whitefish were numerous in Lakes Wyosung and Pasquia, at present it is a rare thing to catch a half dozen of these fish. The Indians on Pasquia, Muscowpetung and Sioux Reserves have been in the habit of fishing throughout the whole year in these two lakes, and they have almost depleted them of whitefish. There is a good supply of tullibee still left, and they are larger and better fish than in any of the other lakes. Pike, pickerel, perch, suckers and buffalo fish are still plentiful. The catch in Qu'Appelle Lake this year was about the same as last. On the 25th July, he saw taken at one time nine small whitefish, all about the same size; they would weigh about one and a half pounds each, and on several other occasions he saw three or four taken at one time, he never saw so many small young whitefish taken in the lakes before. He is of the opinion that it is the result of the close season, and that the whitefish are on the increase. Tullibee, pike, pickerel, &c., are plentiful. Mission Lake has been fished out by Half-breeds and Indians from the Pile Hills Reserve. Katepwe Lake has a good supply of tullibee, pike, pickerel and perch, and a fair amount of whitefish. He finds it difficult to obtain any information in regard to the fisheries from the Half-breeds, owing to their reluctance to give it. He says that almost all the fishermen complain that the close season is too long. They claim it commences one month too soon. The reason they make this claim is because the whitefish and tullibee come in on the shoals about the 1st October, and are easily caught. The fish are then looking around for a place to spawn, and are very stupid, and he thinks it is the very time of the year when they should be protected. It is owing to the enforcement of the close seasons that there are any whitefish left in these lakes.

There has always been an abundant supply of pike and pickerel in the river every spring.

He gives the following as an estimate of the catch:—

	Lbs.	Value.
Whitefish.....	4,000	\$240 00
Tullibee.....	10,000	400 00
Pike.....	6,000	120 00
Pickerel.....	3,000	60 00
Indian catch.....	68,800	1,376 00
Total.....	91,800	\$2,136 00

The cause of the great falling off in this year's catch was the rigid enforcement of the license clause, and the stopping of the Indians fishing in close season. Several nets belonging to Indians and half-breeds were seized and confiscated for infractions of the regulations, but no prosecutions were laid, owing to the poverty of the offenders.

#### CROOKED LAKE.

*Guardian Harry Sayer* reports no fishing done in Crooked Lake during the close season. He reports the whitefish practically extinct. He places the Indian catch of



## RECAPITULATION of the Fisheries in the North-west Territories.

Kinds of Fish.		Quantity.	Value.
			\$
Whitefish.....	Lbs.	11,435,092	626,200 06
Tullibee.....	"	10,000	300 00
Pike.....	"	8,228,594	164,571 88
Pickereel.....	"	8,000	240 00
Sturgeon.....	"	34,320	1,029 60
Suckers, gold-eyes, &c.....	"	120,800	1,208 00
Totals.....		19,836,806	793,549 54

## RECAPITULATION

Of the Yield and Value of the Fisheries of **Manitoba** and **North-west Territories**, for the Year 1892.

Kinds of Fish.		Quantity.	Value.
			\$
Whitefish.....	Lbs.	15,789,105	865,670 78
Pickereel.....	"	600,593	23,943 72
Pike ..	"	8,662,489	173,249 78
Sturgeon.....	"	127,410	5,684 10
Tullibee.....	"	171,800	3,536 00
Mixed fish.....	"	1,617,000	16,170 00
Totals.....			1,088,254 38

## APPENDIX F.

## BRITISH COLUMBIA.

ANNUAL REPORT ON THE FISHERIES OF BRITISH COLUMBIA FOR  
THE YEAR 1892, BY INSPECTOR JOHN McNAB.

NEW WESTMINSTER, B.C., 31st December, 1892.

Hon. CHARLES H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—I had the honour, on the 27th of October last, to transmit an advance report of the general results of the fisheries of British Columbia for the season of 1892, up to that date, and I now beg leave to submit my annual statistical report for the year, with tabulated statements of yield and value, and a synopsis of the reports of local guardians

During the season I issued licenses for 1,275 boats and gill-nets for salmon fishing, as follows :—

To cannerymen on the Fraser River.....	417	boats and gill-nets.
To fishermen ".....	270	"
To fresh fish dealers ".....	25	"
To farmers ".....	8	"
To fish in Howe Sound.....	1	"
Northern coast and rivers—		
To cannerymen.....	422	"
To fishermen.....	132	"
	<u>1,275</u>	

In addition to the above, I also issued licenses for nine seines, and one license giving an exclusive privilege to fish for salmon for commercial purposes, in the Nimpkish River.

The fishery regulations were well observed, and gave general satisfaction to both fishermen and cannerymen.

The season having been what is known here as an "off year" for sockeye salmon in the Fraser River, which, it is claimed, occurs every fourth year, the pack, as was anticipated by the cannerymen, was small, but the returns show an increase of 599,984 cans over the last "off year"—1888—and the quantity of salmon handled fresh by dealers this season is 323,156 lbs. in excess of that of last year.

Notwithstanding the large decrease in the salmon pack of the Fraser River, the fisheries of the province generally—omitting the fur-seal catch—have increased in value \$33,947 over last year's catch.

Total value, omitting fur-seal skins	r 1892.....	\$2,246,777 64
do	1891.....	2,213,830 00
Increase, 1892.....		<u>\$ 33,947 64</u>

The catch of fur-seal skins is 6,633 less than that of last year.

Total catch of Canadian fleet in 1891.....	52,995 skins at \$13	\$ 688,935 00
do	do 1892.....	46,362 " 602,706 00
Decrease, 1892.....	<u>6,633</u>	<u>\$ 86,229 00</u>





## A.

SCHEDULE of Salmon Canneries operated in **British Columbia** during the Season of 1892.

Owner or Agent.	Name of Cannery.	Year first Operated.	Number of Boats.	Number of Hands.	PACK IN 1-LB. CANS.	
					1891.	1892.
<i>Fraser River.</i>						
Bon Accord Fishing Co.....	Bon Accord .....	1879	15	176	339,520	884,480
	Sea Island .....	1890	12	.....	375,520	
J. H. Todd & Son.....	Beaver.....	1890	20	140	623,280	364,800
	Richmond.....	1889	20	220	580,460	244,800
Ewen & Co. ....	Ewen, No. 1.....	1876	20	270	1,200,000	384,000
	do No. 2 .....	1891	10	.....		
H. E. Harlock & Co.....	Harlock.....	1882	20	210	273,456	200,064
B. C. Canning Co. (London). ..	Fraser River Cannery.	1876	20	150	384,000	36,400
	Delta.....	1887	20	160	325,008	204,000
T. E. Ladner & Co.....	Sapperton.....	1878	20	150	375,552	192,800
	Wellington.....	1880	20	160	349,200	288,000
	Laidlaw's .....	1881	20	160	.....	180,000
	Wadhams .....	1887	20	117	565,920	1,532,208
	British Columbia.....	1887	20	163	383,264	
	British American.....	1887	20	118	201,168	
Anglo-British Columbia Packing Co. (Limited), Bell, Irving and Paterson, agents.....	Canoe Pass.....	1889	20	118	193,440	
	Phoenix.....	1887	20	...	375,552	
	Britannic.....	1890	20	.....	316,560	
	Garry Point .....	1889	20	.....	383,296	
	Annandale.....	1891	20	117	9,600	
	Dunfries.....	1891	20	.....	240,000	
Terra Nova Packing Co .....	Terra Nova.....	1892	20	145	.....	216,000
<i>Naas River.</i>						
B. C. Canning Co.....	B. C. Cannery..	1889	30	140	123,880	352,800
A. J. McLellan.....	McLellan's Cannery...	1888	46	185	262,896	540,000
Laidlaw & Co.....	Cascade .....	1889	30	120	144,000	360,000
<i>Skeena River.</i>						
B. C. Canning Co.....	Windsor.....	1878	27	175	465,000	540,000
	North Pacific.....	1889	22	203	537,000	540,000
A. B. Columbia Pac. Co.....	British American.....	1883	27	206	655,632	540,000
Turner, Beeton & Co.....	Inverness .....	1878	24	170	474,000	540,000
Byrnes & Co.....	Balmoral.....	1886	20	170	480,000	540,000
Cunningham & Son.....	Skeena Cannery.....	1883	28	142	566,400	540,000
Laidlaw & Co.....	Standard.....	1890	26	175	519,504	540,000
Dalby & Claxton.....	Royal Canadian.....	1892	21	170	.....	576,000
<i>Rivers Inlet.</i>						
B. C. Canning Co.....	Rivers Inlet Cannery..	1882	20	168	720,000	264,000
	Victoria.....	1882	34	220	480,000	230,400
R. Rithet & Co.....	Warnoch.....	1884	30	200	552,000	223,440
<i>Lowe's Inlet.</i>						
Cunningham & Rood.....	Lowe's Inlet Cannery..	1890	8	78	386,736	390,000
<i>Gardner's Inlet.</i>						
H. Price & Co.....	Price's Cannery. ....	1890	19	41	152,600	288,000
<i>Alert Bay.</i>						
Alert Bay Canning Co.....	Alert Bay Cannery....	1881	8	40	31,200	206,400
	Total Coast. ....					7,211,040
	Total Fraser River.					4,277,552
	Grand total.....					11,488,592

B. RETURNS showing the Number of Boats, Vessels and Men engaged in the Marine Fur Fishery, with Products and Values, for the Season of 1892.

Names of Vessels.	Tonnage.	Value of Vessels.	NUMBER OF MEN.		No. of Canoes.	No. of Boats.	Value of Boats.	CATCH.			Total Number.	Value.	Remarks.
			Whites.	Indians.				Coast.	Sand Point.	Asiatic.			
Annie E. Paint	82	9,500	20	24	12	5	500	186	412	421	1,019	\$ cts.	
Ainoko	75	7,500	6	20	10	2	200	21	719		740		
Aurora	41	5,000	4	20	10	1	100	7	371		378		
Annie C. Moore	113	10,000	23	23	14	6	600	164	379	447	990		
Ariel	91	5,000	7	23	14	2	200		268		268		
Ariel	74	10,000	24			7	700						Seized.
Arietes	86	8,000	24			7	700						
Agnes McDonald	107	9,000	24			7	700		418	738	1,156		
Beatrice	66	6,600	5	20	10	7	700	115	591	373	964		
Beatrice (Vancouver).	49	7,000	15			1	100		455		570		
Borealis	37	8,000	5	20	10	5	500		678		678		
Brenda	100	10,000	26			1	100	21	486		507		
Carlotta G. Cox	76	10,000	23			7	700		409	512	921		
C. H. Tupper	92	12,000	24			6	600	436	1,605	696	2,737		
Carmolite	99	10,000	23			6	600	308	967	542	1,817		
C. D. Rand	51	10,100	12	28	6	6	600	174	705		879		do
Cape Beal	12	5,000		12	6	2	200	28			28		do
Dord Steward	94	11,000	25					27			27		
E. B. Marvin	117	10,000	22			8	800		224	673	897		
Enterprise	69	10,000	23			6	600	183	1,432	430	2,045		
Favourite	80	6,000	6	24	12	7	700		507	507	507		
Fawn	59	7,500	6	20	10	2	200		450	202	652		
Geneva	93	9,700	26			3	300		480		480		
Henrietta	31	3,000	4	10	5	2	200	270	420	600	1,290		do
Katherine	81	4,000	4	28	14	7	700	44	108		152		
Kate	58	4,500	5	24	12	2	200	27	406		433		
Lottie	19	1,500	4	4	2	2	200		270		270		
Laura	19	2,200	4	16	8	2	200						Wrecked.
Mascoe	40	4,500	17			1	100						do
Maud S.	97	6,000	24			4	400	107	220	119	446		
Mary Taylor	42	4,000	18			6	600	185	769	748	1,702		
Mary Belle	58	7,000	5	20	10	4	400	135	807		942		
Miscelief (steamer).	48	7,500	5	20	10	2	200	149	200	230	524		
Mary Ellen	63	7,500	5	20	10	2	200	26	635		661		
Mermaid	73	6,000	5	28	14	3	300	35	507	304	846		
Mountain Chief	83	900	19			6	600		104	238	402		
Ocean Belle	23	8,300	4	12	6	1	100		137		137		Seized.
Oscar and Hattie	81	9,500	20			6	600	128	687	646	1,461		
			23			6		25	186	261	472		

Otto.....	86	12,000	7	16	8	2	200	263	263	do	.....
Pioneer.....	66	7,000	20	.....	.....	5	500	329	427	.....	.....
Penelope.....	70	11,000	21	.....	.....	5	500	345	1,707	.....	.....
Rosie Olsen.....	39	5,000	6	20	10	1	100	472	1,362	.....	.....
Sea Lion.....	50	7,000	19	.....	.....	5	500	629	833	.....	.....
124.....	124	10,000	7	32	16	2	200	970	1,934	.....	.....
Sapphire.....	56	10,000	22	.....	.....	6	600	451	970	.....	.....
Sadie Turpel.....	63	6,000	23	.....	.....	6	600	306	244	.....	.....
Teresa.....	147	23,000	15	.....	.....	6	600	83	176	.....	.....
Thistle (steamer).....	147	23,000	7	32	16	2	200	79	4	.....	.....
Triumph.....	98	10,000	23	.....	.....	6	600	204	257	.....	.....
Unbrma.....	92	10,000	25	.....	.....	6	600	143	623	.....	.....
Viva.....	48	9,200	4	16	8	2	200	193	1,473	.....	.....
Venture.....	73	5,000	20	.....	.....	6	600	1555	1,748	.....	.....
Vanconver Belle.....	73	16,500	22	.....	.....	2	200	5	165	.....	.....
Victoria.....	63	9,500	22	.....	.....	8	800	23	558	.....	.....
W. P. Sayward.....	59	6,000	19	.....	.....	6	600	180	900	.....	.....
W. A. Earle.....	68	8,000	22	12	6	5	500	100	1,080	.....	.....
Winfred.....	13	1,400	6	.....	.....	6	600	1,225	1,866	.....	.....
Labrador.....	25	4,500	11	.....	.....	2	200	100	100	.....	do
Libbie.....	93	10,000	23	.....	.....	4	400	50	275	.....	do
Marla.....	94	9,000	21	.....	.....	7	700	39	89	.....	do
Maggie Mc.....	71	10,000	23	.....	.....	6	600	.....	.....	.....	Wrecked.
Minnie.....	40	6,000	4	20	10	2	200	500	500	.....	.....
Walter L. Rich.....	76	10,000	19	.....	.....	5	500	182	386	.....	.....
Willie McGowan.....	115	10,000	23	.....	.....	7	700	93	204	.....	.....
W. P. Hall.....	99	9,000	20	.....	.....	7	700	416	416	.....	.....
Wanderer.....	25	3,000	3	10	5	1	100	137	137	.....	.....
Minnie.....	10	1,000	3	.....	.....	2	200	5	5	.....	.....
	4,456	513,000	961	511	250	281	28,100	6,892	14,805	46,362	602,706 00



## PROTECTION OF FISHERIES.

The fishery protection service during the season was efficient, and the guardians performed their duties in a satisfactory manner. The number of special guardians employed has been sufficient, except in the Skeena River district, where two active officers are necessary during the fishing season, if the weekly close time is to be as strictly enforced as its importance demands.

On the Fraser River a more suitable steam launch is absolutely necessary, in order that the inspector may have it within his power to have the requirements of the "Fisheries Act" and the regulations of the department duly enforced. Many boats of a larger and more seaworthy class than formerly used are being employed in salmon fishing. These boats fish far outside the river, and in all weather. It is impossible for a guardian to reach them in a row-boat, and the present launch, not being fitted with condensers of sufficient power, cannot cruise in salt water. A boat is required in which Howe Sound and the creeks and inlets in the vicinity of the Seechelt peninsula can be visited occasionally, as salmon fisheries are being established at places which cannot be reached at present by an officer by any available method. The knowledge that a boat is employed by the department which may visit them at any hour tends materially to ensure compliance with the requirements of the law.

## REPORTS OF THE FISHERY GUARDIANS IN BRITISH COLUMBIA.

*Guardian C. H. Green* reports as follows:—As I was not appointed till the latter end of June, I am unable to give you any report about the run of spring salmon, but from what I saw of the sockeye salmon run, I am decidedly of opinion that, for a poor season, the run was much better than the corresponding year 1888, although I think the fish were later in entering the river than usual.

The effect of throwing the Fraser River open to all British subjects and making the number of licenses unlimited has been that quite an increased number of boats were fishing this year, than for the last four years preceding, and in view of next season being one of large runs on Fraser River, and also that in this district there will be at least six new canneries in running order next year, making in all 20 canneries, I calculate that there will be about 900 boats fishing in this district. I think it will be to the interest of the department to supply the guardian here with a steam launch to enable him to get about quickly to prevent infraction of the laws on the river, and also, if the offal has to be kept out of the river, to enable him to visit each cannery at least once a day to see the regulations carried out.

I might also state that quite a number of cases of infractions of the regulations were reported to me both during the spring and fall runs, and were also seen by myself, but having no authority to deal with them, I presume they were allowed to go by default, as there was only one guardian employed on the whole river during the whole season, it is impossible for him to attend to all the work.

In conclusion, I would respectfully suggest that the season for the "sockeye" salmon should close not later than the 25th August, and that the "coho" season should commence on the 15th September as formerly, as I am of opinion that, in future, the "cohoes" will have to be utilized to make up the pack, while there are so many canneries on the river.

*Fishery Guardian H. McDonald*, of the North Arm of Fraser River, reports that the law was well observed in his district, and that he had no violations to deal with.

*Guardian C. D. Grant* reports that, on the Fraser River, the regulations of the department were generally well observed; that he patrolled the river daily in the steam launch and found but three violations of law, and that in each case fines were imposed.

He also states that, in his opinion, the time has arrived when in order to enforce the fishery regulations the service of a steamer of sufficient power and fitted for salt water cruising has become a necessity, as boats of a larger class than formerly employed are being prepared to fish outside of the river and off the adjacent coast.

*Guardian Thos. McNeish*, of the Skeena River district, submits the following report:—

I reached the Skeena *via* Victoria on the 6th May, and found a number of boats fishing for spring salmon for salting, smoking and home consumption. Although the canneries did not commence operations until the 15th June, owing to an agreement among themselves to that effect, the season was a very successful one. The canneries without exception put up a pack which reached the limit to which they had bound themselves, viz., 11,250 cases each. The regulations of the department were fairly well observed, although it was found necessary to impose ten fines on cannery and saw-mill managers. It is quite impossible for one officer, in a row boat, to guard the 45 miles of fishing ground on the Skeena, without taking Granville channel into consideration. I beg, therefore, to recommend that during the canning season in future two guardians be employed in the Skeena district, as it is of great importance that the weekly close time be strictly enforced; in my opinion the future supply of salmon depends largely upon this being done, and in order that it may be observed the presence of guardians is necessary.

*Guardian F. S. Spain*, from the Naas, reported verbally, on his return, that the season's catch of salmon was an average one; that the fishery regulations had been well observed, and that no violations of the law had occurred.

*Guardian Wm. Roxburgh*, of Rivers Inlet, reports that the fishery regulations were well observed at Rivers Inlet, and that although the catch of salmon was light when compared with last year's catch, it is not, in his opinion, to be attributed altogether to a scarcity of fish, but partly at least to the excessively heavy rains and cold weather which prevailed throughout the fishing season, and which he thinks caused the salmon to swim deep and pass beneath the nets.

I may here state that Mr. Kirkland, who was manager of a cannery at Rivers Inlet, informed me that several fine shad had been caught at Rivers Inlet in July last, having meshed in salmon nets. As all the shad in the waters of the Pacific have originated from ova planted in the Sacramento River, this shows a migration northward of over 1,000 miles. Several shad were also caught in the north arm of the Fraser River in July.

I have the honour to be, sir,

Your obedient servant,

JOHN McNAB,

*Inspector of Fisheries for British Columbia.*



C.—RETURN showing the Number, Tonnage, and Value of Vessels and Boats, &amp;c.—Province of British Columbia—Continued.

LOCALITY.	KINDS OF FISH AND FISH PRODUCTS.														VALUE.				
	Hallibut, lbs.	Herring, lbs.	Herring, salted, barrels	Herring, smoked, lbs.	Oulachons, salted, brls.	Oulachons, fresh, lbs.	Oulachons, smoked, lbs.	Trout, lbs.	Assorted or mixed fish, lbs.	Smelt, lbs.	Rock cod, lbs.	Tooshqua, lbs.	Skill, barrels.	Fur-seal skins, No.	Hair-seal skins, No.	Sea Otter skins, No.	Fish Oil, galls.	\$	cts.
Fraser River and South to American Boundary	212000	50000	.....	.....	25	32500	15000	105000	8000	11600	5500	2700	.....	.....	.....	.....	850	719,752	14
Fraser River to Howe Sound.	405000	224000	.....	.....	.....	13000	.....	25000	58000	100000	25000	250000	.....	.....	.....	.....	10000	122,878	00
Howe Sound to Rivers Inlet.	2500	.....	.....	.....	125	8000	800	1100	1320	.....	.....	5600	.....	.....	300	.....	3000	126,109	80
Rivers Inlet to Skeena River.	5000	.....	.....	.....	125	2000	.....	750	.....	.....	.....	.....	.....	.....	2000	.....	14000	648,826	00
Skeena River to Alaska Boundary.	10000	5000	.....	2000	550	60000	2000	700	.....	.....	.....	.....	.....	.....	150	.....	10500	172,086	00
East Coast of Queen Charlotte Islands.	25000	25000	125	3000	.....	.....	.....	10000	.....	.....	.....	.....	35	.....	1000	.....	60000	36,442	50
West Coast of Queen Charlotte Islands.	60000	10000	.....	3000	.....	.....	.....	10000	25000	15000	93000	100000	60	.....	250	14	10000	14,330	00
Cape Scott to Comox.	6000	14000	.....	1000	.....	.....	.....	10000	25000	30000	50000	50000	.....	.....	.....	.....	12000	23,430	00
Comox to Victoria.	600000	130000	20	12000	50	60000	4000	15000	240000	30000	50000	8000	.....	.....	.....	.....	30000	139,750	00
Victoria to Cape Beale.	26000	2000	.....	.....	.....	.....	.....	5000	20000	.....	.....	.....	.....	.....	.....	.....	25000	18,800	00
Cape Beale to Cape Scott.	6000	4000	.....	.....	.....	.....	.....	.....	8000	.....	.....	.....	.....	.....	.....	.....	80500	44,010	00
Totals.	1357500	460000	145	21000	875	175500	21800	68050	430320	156600	173500	416300	95	.....	3700	14	255900	2,067,106	44
Canadian fur seal fleet.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46362	.....	.....	.....	602,706	00
Estimate of hair-seal skins not included above.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3000	.....	.....	.....	3,100	00
Oysters, 2,000 sacks at \$2 per sack, \$4,000; clams, 5,500 sacks at \$1.75 per sack, \$9,625; mussels, 300 sacks at \$1.75 per sack, \$525. Shrimps and prawns, \$5,000; crabs, 600,000 at 5c. each, \$30,000; abalones, 3,000 lbs. at 20c., \$600; isinglass, 1,500 at 30c., \$450.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14,150	00
Oil manufactured from salmon offal on Fraser River, estimated value per gallon 30c.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36,050	00
Fish guano, made from salmon offal on Fraser River, 15 tons, estimated value \$25 per ton.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3654	1,096	20
Estimate of various kinds of fish consumed in the interior of the province but not included in the above.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	375	00
Grand total.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46362	6700	14	259554	2,849,483	64
Fur seal skins caught by United States vessels and landed in Victoria, B.C.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3381	.....	.....	.....	43,953	00



## D.

COMPARATIVE Statement of the Yield and Value of the Fisheries of **British Columbia**, for the Year 1892.

Kinds of Fish.	Quantity.	Price.		Value.	
		\$	cts.	\$	cts.
Salmon, in 1-lb. cans.....	11,488,592	0	12	1,378,631	04
“ fresh.....Lbs.	2,935,509	0	10	293,550	90
“ salted.....Brls.	2,348	12	00	28,176	00
“ smoked.....Lbs.	135,500	0	20	27,100	00
Sturgeon, fresh.....	520,500	0	05	26,025	00
Halibut “.....	1,357,500	0	05	67,875	00
Herring “.....	460,000	0	05	23,000	00
“ smoked.....	21,000	0	12	2,520	00
“ salted.....Brls.	145	4	50	652	50
Oulachons, fresh.....Lbs.	175,500	0	05	8,775	00
“ smoked.....	21,800	0	15	3,270	00
“ salted.....Brls.	875	8	00	7,000	00
Trout, fresh.....Lbs.	68,050	0	10	6,805	00
Fish, assorted and mixed.....	430,320	0	05	21,516	00
Smelts, fresh.....	156,600	0	05	7,830	00
Rock cod.....	173,500	0	05	8,675	00
Tooshqua.....	416,300	0	05	20,815	00
Skull, salted.....Brls.	95	12	00	1,140	00
Fur-seal skins.....No.	46,362	13	00	602,706	00
Hair “.....	6,700	1	00	6,700	00
Sea-otter skins.....	14	150	00	2,100	00
Oysters.....Sacks.	2,000	2	00	4,000	00
Clams.....	5,500	1	75	9,625	00
Mussels.....	300	1	75	525	00
Crabs.....No.	600,000	0	05	30,000	00
Abalonies.....Lbs.	3,000	0	20	600	00
Isinglass.....	1,500	0	30	450	00
Shrimps and prawns.....				5,000	00
Estimate of fish consumed in the province, and not included in the above enumeration.....				125,000	00
Fish oil.....Galls.	259,554			129,046	20
Guano, made from offal.....Tons.	15	25	00	375	00
				2,849,483	64
Fur-seal skins, caught by United States vessels, and landed in Victoria, B.C.....Skins.	3,381			43,953	00

## E.

CAPITAL invested in the Fisheries and Fishing Material of British Columbia,  
during the Season of 1892.

Material.	Value.	Total.
	\$	\$
143 vessels, 5,254 tons .....	656,150	
1,766 boats .....	91,365	
278,468 fathoms of gill-net .....	210,662	
15,300 do seines .....	15,300	
Trawl lines .....	13,875	987,352
38 salmon canneries, complete .....	760,000	
12 oil factories .....	38,000	
2 freezing establishments .....	18,000	
6 salting stations .....	3,000	819,000
Season 1891 .....		1,806,352
Increase, 1892 .....		1,679,520
Sailors and seal hunters—		
Whites .....	961	
Indians .....	511	
	1,472	
Fishermen and cannerymen .....	6,698	8,170
250 canoes, employed by sealing vessels .....		\$15,000

## APPENDIX G.

## ONTARIO.

SYNOPSIS OF FISHERY OVERSEERS' REPORTS IN THE PROVINCE OF  
ONTARIO, FOR THE YEAR 1892.

## LAKE SUPERIOR DIVISION.

*Overseer D. F. Macdonell*, who succeeded Thos. A. Keefer of Port Arthur, states that, as fishermen keep no record of their individual catch, it is with extreme difficulty that he could secure any reliable data as to the yield of fisheries in his district. The decline noticed is not attributable to the scarcity of fish alone, but to the fact that no pound-net fishing was carried on at Thunder Bay, and no fishing at all between Peninsula Harbour and Otter Head. On his visits of inspection he always found the guardians attentive to their duties, and he feels satisfied that the close seasons were well observed. All the nets examined by him were of the regular mesh. There are no saw-mills in his division and consequently it enjoys freedom from the saw-dust nuisance. Mr. Macdonell states that if tags bearing the number of licenses were attached to each pound-net it would greatly assist the officers in detecting illegal ones. This should be compulsory. Fishermen of Lake Superior would welcome the establishment of a fish hatchery there, and would furnish the spawn free of charge to assure its success. The value of the fisheries in this part of Lake Superior is computed at \$89,595.

*Overseer T. H. Elliott* has been appointed to take charge of that part of Lake Superior from Otter Head extending to French River on Georgian Bay. He also complains of the difficulty experienced in obtaining any reliable returns of the fishermen's operations.

In the Lake Superior portion of his division, he reports a slight improvement in the yield of salmon-trout and sturgeon, but a decline in that of pickerel and pike.

In the north channel of Lake Huron, part of his district, called the

## MANITOULIN ISLAND DIVISION,

Mr. Elliott reports an increase in almost every kind of fish, but especially in pickerel, sturgeon, trout and whitefish; the latter he attributes to a more vigorous prosecution of these fisheries, and to an increase in plant used. A large number of pickerel, pike and bass have been illegally caught in small trap-nets, which are easily lifted by fishermen on their way to or from the gill-net grounds, while others use a few gill-nets as a mere blind.

On the destruction of immature fish, Mr. Elliott says:—

"The catching of small whitefish in pound-nets and seines is one of the greatest evils now existing. These nets being shore machines as it were, and as these small fish follow the shore in schools, large numbers of them are caught. At one station alone this season, 22 tons of these fish (classed as seconds) were handled, and buyers inform me there is no profit in them; but competition is now so keen in buying that fishermen say if you do not buy our small fish, you cannot have the large ones, and buyers are compelled to take them in order to hold their trade. The catching of those immature fish is greatly to be regretted. If fish are caught so young that they cannot spawn or reproduce their species it will soon exhaust the supply. There are very few pound-nets in my division that have meshes of the proper size, and even if they had it would not prevent the catching of those small fish, as fishermen have now too many devices to catch them even if the mesh were of the proper dimension."



The mesh regulation has been tried without effect by Michigan Fish Commissioners. A restriction of limit in size or weight of fish would do more to check the destruction of immature fishes than a regulation fixing the size of mesh. The towing of logs has destroyed many a whitefish feeding ground in Georgian Bay by the loose bark sinking and polluting them.

The larger yield in this division does not necessarily imply that the fish were plentiful. On the contrary, fish are scarcer and it requires more twine to supply the markets. Two men who a few years ago fished 18 boxes of nets of 300 fathoms each, or 5,400 fathoms, this season used 32 boxes, and the twine is now much finer than formerly. This quantity, (9,600 fathoms), is considered an ordinary outfit for a boat in Georgian Bay. Fishermen with small rigs are scarcely able to make a living now, and if fishing is conducted as actively for the next five years, many of them will be compelled to abandon the business. The rough weather during the month of November materially aided the observance of the close season for whitefish and salmon-trout. There was no illegal fishing this year in Batchawana Bay, a reliable man patrolled these waters till the 25th of November. It is reported that in past years over 25 tons of whitefish had been taken in this bay every close season. According to Mr. Elliott, the month of November is not well adapted for the close seasons of either salmon-trout or whitefish in those waters, for while the former spawn in the month of October, the latter hardly commences to spawn before the 20th of November. The close season for bass and pickerel is often violated by Indians, who are encouraged in their illegal work by white traders supplying them with nets and buying their fish. Much illegal fishing could be prevented by prohibiting traders to buy fish from unlicensed fishermen or Indians under heavy penalties.

The close season for speckled-trout was also violated both by Indians and white men, the former netting the northern tributaries of Lake Superior to such an extent that they are being depleted of this valuable game fish. Unfortunately they are encouraged by unscrupulous traders who ship them to United States markets with consignments of other fish.

This officer is also in favour of adopting metallic tags to register the number of licensed pound-nets, as well as the numbering or naming of licensed boats on their foresail. This would certainly facilitate the detection of poachers. There are so many tugs now employed in the fishing industry that it becomes almost impossible for an overseer to discover illegal or unlicensed nets, as the fishermen are warned of the approach of officers by these tugs in time to conceal their nets.

On the importance of fish hatcheries, Mr. Elliott says:—"Artificial fish culture has ceased to be thought of by American fishermen, dealers and others as an experiment, as evidences of the repletion of their fishing grounds are now too plainly seen to be denied. There is now a thirty million hatchery at Sault Ste. Marie, Michigan, and they intend increasing its capacity this coming season. There is every facility at this point for a hatchery, and the town council of Sault Ste. Marie have passed resolutions offering a free site and water, should such be established, while fishermen will furnish the spawn free of charge, and Messrs. Ainsworth & Ganley offer their tug on Lake Superior free for the purpose of planting the fry. The large whitefish spawn on the lower Lake Superior division could be easily collected on the Sandy and Parisienne Islands' shoals, as they spawn in from one to three feet of water. The ice freezes to the bottom and destroys a great deal of this spawn. Everything seems to tend to the destruction of the ova upon the shores from the time it is first deposited until it is hatched, while if the same could be brought to maturity by artificial means, its value to the fisheries in these waters could scarcely be estimated."

Several fines were imposed for illegal fishing and one for violation of the statute respecting saw-dust; one tug and several pound-nets were confiscated. Several parties are still to be prosecuted for illegal acts.

The saw-dust regulation is being strictly enforced, to the satisfaction of fishermen and sportsmen, as nearly all streams in this division abound with speckled-trout. The value of the fisheries on the lower part of Lake Superior is computed at \$71,000, and in the north channel and Manitoulin Island at \$323,196, making a grand total for the district under this officer of \$394,262.



## GEORGIAN BAY DIVISION.

The fisheries of this division are valued at over half a million dollars. Owing to the removal from office of Capt. Dunn before the end of the season, the returns are not as complete as formerly. There were not so many tugs engaged in the business as last year. The catch of whitefish was better but that of trout not so good as that of 1891. Pickerel and herring yielded about an average catch. For want of a steamer, the protection service of Georgian Bay was not as satisfactorily performed as is to be expected next season, when a new cruiser will be put on those waters. However large the quantities given may seem, they are not overestimated, as the returns of one firm at Wiarton, as given by themselves, shows over 2,300,000 lbs. of fish, and another at Collingwood amounting to nearly 3,000,000 lbs.

*Overseer John Donaldson* states that the fishing season was generally considered good in the vicinity of Collingwood. Fishermen complain that the bark falling off saw-logs shipped to the United States is becoming injurious to fish life. He also complains of the destruction of immature whitefish, weighing about  $1\frac{1}{2}$  lbs., caught in pound-nets off Manitoulin Island. They are called No. 2 whitefish, and are worth little in the market. The weather was very stormy after 20th October, which materially aided in the observance of the close season.

*Overseer Geo. S. Miller* states that whitefish are now very scarce on the western side of Georgian Bay. Most of the fishermen of his division fish on the northern part of the bay, and dispose of their fish there.

## LAKE HURON DIVISION.

*Overseer H. W. Ball* reports an increased catch of fish in that part of the coast under his charge, including ex-Overseer Murray's district. The catch of whitefish and salmon-trout would have been larger but for the storms prevailing at the end of October. These gales, however, had the good effect of preventing the usual illegal fishing along the Bruce peninsula coasts during the close season. The most effective way to check poaching in that locality would be by the patrolling of these grounds with a tug. All dams were examined during the summer, and in none of them were obstructions to the ascent of fish noticed. Some spearing for sturgeon was done at the Sauble. Mr. Ball is of opinion that it is highly time to give some protection to herring during its spawning time, which is generally believed to be the month of November. The returns of this officer at schedule prices amount to \$260,755—more than double the product of 1891.

*Overseer Hugh McFayden* reports a very unfavourable season. The excessive rains during the summer raised the waters of the Saugeen River so high that trout would not bite as usual. Saw-mills were visited during the season, and no violations detected. Two new fish-ways were constructed during the summer, making six in all; they were kept in first-class order. This officer estimates the catch of speckled trout at 40,000 lbs., which he values at 25 cts. per pound, but it has been entered at our schedule prices. This deduction counterbalances other estimates which might be under our schedule rates.

*Overseer H. B. Quarry* reports an increase in every kind of fish with the exception of sturgeon and pickerel, which he ascribes to light winds in July and August. The improvement noticed in whitefish is attributed to the contributions of fry from hatcheries. In the beginning of the season the whitefish run was of a large size, from 10 to 12 lbs., but afterwards the average fell to about 4 lbs. The total value of these fisheries is computed at \$24,747, more than double that of last year.

*Overseer J. C. Pollock* also returns an increased catch of fish, most noticeable in pickerel. Fishermen of this part of St. Clair River strongly object to a close season being imposed on them while there is no like restriction maintained on the United States side. He states that as many as 200 boats are seen trawling for at least 60 days during the season, yielding an average of 10,000 lbs. per day. To this add about the same quantity by seines on both sides of the river, and the enormous drain upon this fishery for 24 miles of the river is apparent. It is no wonder that the shore catches are

diminishing. Pound-nets should not be allowed near Kettle and Blue Points. The total yield is valued at \$10,000, an increase of \$4,000 over that of 1891.

## LAKE ST. CLAIR UPPER DIVISION.

*Overseer Chas. W. Raymond* reports a very small catch compared with the previous year, owing to the short time of fishing in the spring and to high water in the streams emptying into the bay. He reports no infractions of the fishery laws, and states that the close seasons were well observed. The result shows a falling off of 66 per cent.

## THAMES RIVER.

*Overseer T. McQueen* states that there were only 20 fishing stations, employing about 80 men, in operation last season. The catch of fish was generally smaller than the previous year. Forty-seven thousand five hundred and fifty-two pounds of pickerel and 90,234 lbs. of coarse fish were taken. Two violations of the close season by licensed fishermen came under his notice, but the parties promptly retracted on being threatened with the cancellation of their licenses. The fishermen of this district are reported as fully realizing the protective measures adopted for the regulation of this branch of industry. They seem to think that the present close season for pickerel and maskinongé is suited to the spawning time of those species.

*Overseer Peter McCann* also reports a decreased yield of fish as compared with that of previous years. In the beginning of the season a severe frost kept the fish back, then the driving of timber commenced and considerably interfered with dip and scow-net fishing. Pickerel got so scarce that they actually sold as high as 11 cents per pound on the fishing grounds. Further up stream fishing was good, even better than for years past. There are now thirteen fish-ways on the upper portion of this stream, all in satisfactory order. Complaints of killing fish with explosives came to this officer's notice, but notwithstanding his efforts to punish the guilty parties, he found it impossible to procure sufficient evidence to secure a conviction.

## DETROIT RIVER.

*Overseer Joseph Boismier* reports about the same yield of fish as last year, but an improvement is noticeable in whitefish, especially in the vicinity of Fighting Island. They were more plentiful on the Canadian side than on the Michigan shores, and had the weather been more favourable, the catch would have been still larger. Pickerel and sturgeon are reported as increasing in Lake St. Clair. The total value is made up at only \$2,725.

## LAKE ERIE DIVISION.

*Overseer D. Girardin* states that the past season was the roughest he ever experienced in that vicinity, hence a further decline in the yield of the Pelee Island fisheries. Black bass is the only kind of fish making a favourable showing. This fish is hard to capture; it is said that it will find its way out of a trap-net in a very short time. After the big gales the fish did not strike inshore again. The yield of these fisheries does not reach \$15,000; last year it was \$26,700, while a few years ago it amounted to over \$60,000, showing a decrease of exactly 75 per cent since then.

*Overseer W. Freeland*, who has been appointed in place of John McMichael for the Elgin division, returns about an average catch of fish. Herring and pickerel are the staple fish of this division, and large hauls were made during the month of October. The close season was fairly observed; only one party was fined for illegal fishing. The total value of the yield of this division reaches \$100,000—about the same as last year.

*Overseer Henry Linley* reports that the fishing season has been more satisfactory than for years. The run of herring was very large and lasted well into July. These staple fish were of a large uniform size and of good quality. Fishermen say they must use coarser meshes in the pots of their pounds to successfully carry on herring fishing, otherwise a good many would get gilled and would be a dead loss for commercial purposes. Whitefish are becoming more plentiful; splendid hauls of this delicious fish were



made, attributable to the annual output of fry from the Sandwich hatchery. Pickerel are also as plentiful as ever and meet with ready sale on the United States markets. Fishermen were dissatisfied at having to discontinue herring fishing during close season for whitefish. They claim that in view of the great abundance of large-sized herring in their waters, there is no urgent necessity to protect the herring beyond having all nets removed by the 15th of November. It is this overseer's opinion that these fish commence spawning only about that time. There are no salmon-trout in this division. The heavy gales at the end of October considerably damaged the fishing gear, so much so that it could not be got into shape again before the order to stop fishing of all kind came. Complaints against mill rubbish and bark from timber were investigated and the nuisance stopped. Illegal nets were seized in Rondeau Bay and destroyed. The total value of the fisheries of this district is placed at \$123,200, a considerable increase over last year.

*Overseer David Sharp* reports the catch of fish above the average. If fishing for coarse fish had been allowed during November it would have been the largest yield for the last ten years. Two parties were fined for taking pickerel during close season. Several seines and dip-nets were seized and destroyed and the owners fined for violations of the Fisheries Act. Mr. Sharp says he has examined some whitefish and herring during the month of November and believes that they spawn late in November; he would be in favour of allowing fishing for whitefish and herring till 10th November, and then stop all further fishing for the year. Some protection should be given to the sturgeon. The total yield is valued at \$33,972, a slight surplus over that of last year.

#### LAKE ONTARIO.

*Overseer Fred. Kerr*, who had charge of the Essex County division, in Lake Erie, as well as the Hamilton district, reports the catch of the common herring, known as blue-back, as unusually large in both districts. Immense hauls of these fish were made in the Lake Erie division, especially on the east side of Point Pelee, while on the west side fishing was exceptionally poor. Herring were of large size and brought fair prices on the home market. These fish have again returned to the Niagara waters, from where they had almost entirely disappeared. Owing to the rough weather towards the end of the fishing season, there is no doubt herring were allowed to spawn unmolested. The abundance of these fish in Lake Ontario is ascribed to the cessation of gill-net fishing during the summer months, which allows them to grow and congregate on their grounds undisturbed.

There was no improvement in the catch of cisco-herring. On the contrary, a steady decline is noticeable, and Mr. Kerr fears the cisco industry will soon be a thing of the past, unless some regulation mesh be adopted.

There were but few fishermen engaged in the whitefish and salmon-trout fishery this season in Lake Ontario, but these fish seemed more abundant than usual. Good hauls of the former were made with the seine at Burlington Beach during six or seven weeks, while quite a number of the latter were caught at Winona and Grimsby with gill-nets.

About 25,000 lbs. of sturgeon were captured at the mouth of the Niagara River. They were plentiful and of large size, many of them weighing over 100 lbs. each. On the Lake Erie coast they were scarcer, especially at the head of the lake opposite Buffalo, where years ago so many were captured, they seem to have almost disappeared, owing, no doubt, to overfishing and to the pollution of these waters by the sewerage of this large city.

Coarse fish were as abundant as last year, and large quantities were taken.

The fishery laws were fairly well observed, though several parties were fined for spearing, and a number of gill-nets found illegally set in Burlington Bay were seized. Fishermen received favourably enough the departmental order to stop all fishing during November. The gill-net fishermen of Lake Ontario are favourable to a protective time for herring, but would not like it to commence before 15th November.

The total value of the fisheries of that part of Lake Ontario under the charge of this overseer amounts to \$45,686—an increase of over 33 per cent as compared with the yield of 1891.

*Overseer Wm. Sargent* returns about the same catch of fish in his division as last year. Common herring are getting more plentiful every year. Some of them are now cured and smoked as ciscoes, and bring the same price on the market. Ciscoes are steadily decreasing, although some fishermen still expect to see them as abundant as ever. To attain this they should be protected during their spawning time. The close seasons were all well observed. The total value of this district is computed at \$40,666.

*Overseer Wm. Helliwell* returns an increased catch as compared with that of last year, although he is of opinion that fishermen undervalue their catch, fearing a higher license fee, should the yield be large. The take of herring was three times as large as that of 1891. Coarse fish were as plentiful as before, though considerably less were caught. The whole catch, valued at \$13,359, an increase of nearly 100 per cent over that of the preceding season, was disposed of on the Toronto markets.

*Overseer Chas. Gilchrist* reports a very poor fishing season in Lake Ontario as well as in Rice Lake and tributaries. The latter lake being shallow, the heavy gales prevailing during most of the summer stir the muddy bottom and render the waters so dirty that good fishing was out of the question. Maskinongé and bass are numerous, but it is only in September, after the weeds have got old and sunk to the bottom, that good captures can be effected. Only ten permits were issued to foreigners to angle in Rice Lake. The same storms interfered with the gill-net fishermen of Brighton, who sometimes were as long as three weeks before they could raise their nets, and, of course, most of the fish would be dead. This accounts for a decline in the total yield of this district of over 50 per cent, being only valued at \$9,800.

*Overseer Nelson Simmons* returns about an average catch of fish. A slight decline is noticed in bass, but coarse fish were more abundant than ever known before. The law has been generally well observed. The total yield is valued at \$11,000.

*Overseer Joseph Redmond* reports a considerable increase in all the finer grades of fish, which he attributes to a better observance of the close seasons during late years. Whitefish and salmon-trout are doubtless becoming more numerous, especially where fry was deposited a few years ago, and the fishermen appear to appreciate the department's efforts to stock and preserve their waters, by a stricter observance of the fishery regulations. The excessive use of hoop-nets tends to diminish the stock of coarse fish, and Mr. Redmond thinks that after the spring fishing is over these nets should not be set again till after the 1st of October. The total yield of this district amounts to \$58,400, an increase of \$7,000 over last year.

*Overseer W. P. Clarke* notices a considerable decrease in the catch of fish, especially in whitefish and herring, in the Bay of Quinté. The run of whitefish was much later coming into the bay than usual, hence seining for them was poor, and the take proportionately small. Coarse fish were numerous, and the hoop-net fishermen did well. The total value is made up at \$17,000; last year it was \$26,000.

*Overseer A. D. Sills* reports that although the catch of fish is not nearly so large as last year, the prices obtained were considerably in advance of those of former years. The run of whitefish came so late that the close season was nearly at hand, and but few fish were taken. Pickerel did not seem to frequent their usual grounds in the spring time. The whitefish close season was not well observed. Fishermen of this division, on hearing that herring nets were permitted elsewhere, not only set their herring nets, but their gill-nets as well, which were seized. Mr. Sills considers that herring nets should not be allowed at all during November, as they break up the schools of whitefish, as well as facilitate illegal fishing for these fish. The total yield of these fisheries is estimated at \$8,400, being a decrease of over 25 per cent from last year, although still above the catch of 1890.

*Overseer R. R. Finkle* returns only 20,000 lbs. of whitefish, and no other kinds of fish for the Amherst Island district. The close seasons were well observed by the few fishermen employed in the industry, and no violations of the laws came under his notice.

*Overseer Peter Kiel* states that the fisheries of Wolfe Island have now dwindled down to a few coarse fish netted in marshy, low places during the early spring. Few are engaged in this fishery, as there is no home market for coarse fish, and after



deducting the United States duty from the low prices obtained for them, export is rendered unprofitable. Many American tourists visited our waters during the summer months and had good sport. They were warned against taking young and immature fish, and from examination of their catch Mr. Kiel believes that they honestly complied with the regulation. He recommends that a few licenses be issued to honest fishermen in the vicinity of Pigeon Island, where whitefish and salmon-trout might be taken.

*Overseer John Cox* states that fishing was not vigorously carried on about Howe Island, although the run of coarse fish was good. Angling and trolling for bass was better than usual.

#### FRONTENAC, LEEDS AND LANARK DIVISION.

*Overseer Thos. Merritt* reports a considerable increase in all kinds of fish. Bass was never known to be so plentiful in the river, as well as in the inland waters of this division. The angling sportsmen did well. With a couple of exceptions, when delinquents were punished, the close season was strictly observed. Many foreign tourists carry with them small seines for the purpose of taking bait, which prove to be very destructive to the young of all game fish; and he again recommends that these Americans be compelled (under liability of seizure of their yachts) to report their arrival and obtain permits from the fishery officer to fish in our waters. Should this be adopted, beneficial results would ensue.

*Overseer N. Acton* states that all fishing in his district is carried on by trolling and angling. Bass were as plentiful as during the previous season. The catch of pike and other coarse fish is about the same as last year. The law was well observed, and complaints were few.

*Overseer Geo. Lake* states that the catch of fish was an average one. The close season was well observed. There are no fish-ways in his division, but he thinks one should be built at foot of Bob's Lake. Saw-mill owners keep the rubbish from the streams. Mr. Lake recommends the granting of permits to actual settlers during November to catch herring for domestic purposes.

*Overseer Robt. A. Gilbert* states that no netting is permitted in his district. Angling was good, especially on Trout Lake, which is fast becoming a favourite resort. The close seasons were well observed. The settlers of Clarendon township would like to see that part of the Mississippi River stocked with pickerel fry. There are no fish-ways in this district.

*Overseer H. R. Purcell* also states that no netting is allowed in the inland waters under his charge. Angling was very good, especially during November. Mill-owners are complying faithfully with the saw-dust requirements. Five persons were fined for violations of the fisheries regulations. Mr. Purcell states that the lakes are beautifully situated and were they properly protected and some of them restocked with fry, should attract numerous sportsmen. All foreigners should pay a fee before being allowed to fish in our waters.

*Overseer Wm. Hicks* claims that with the help of guardians the protection of his district was efficiently performed and the close seasons were respected. There was some good salmon-trout fishing. Mr. Hicks is of the opinion that these fish spawn in October instead of November, and that bass spawn in June. The latter fish is becoming more plentiful, and schools of young bass are noticed around the shores.

#### GRENVILLE, DUNDAS, STORMONT AND GLENGARRY DIVISIONS.

*Officers Wallace, Poole, Hunt, Boyd, Mooney and Donald J. McDonald* have charge of the above divisions. With the exception of a few hoop-nets, fishing in these waters is all carried on by angling and trolling, mostly by sportsmen and visitors, who employ a large number of boatmen. The catch of bass is given at 36,200 lbs., and that of pike at 73,700 lbs. The total value of all the fish is computed at \$6,789, being a considerable increase over that of last year.

## PRESCOTT, RUSSELL AND CARLETON DIVISIONS.

*Overseers O. Miron, R. O. Campbell and Matthew Riddell* have reported on these divisions. Mr. Miron says no other fishing except hook and line is allowed in his district. Anglers did poorly, as the water was too low. The close season was well observed. The only fish-way in his district was kept in good repair.

Mr. Riddell reports that more fish were taken than during the previous year. He thinks a fish-pass should be placed in the dam at Galetta Falls, on the Mississippi River, to allow the fish from the Ottawa to ascend that stream.

## RENFREW DIVISION.

The few fish caught in these waters for domestic consumption are only valued at \$2,000.

*Overseer Geo. Russell* states that fish are increasing since the saw-dust regulations are better observed. The only fish-way in his district has been kept open and in good order.

*Overseer A. Acheson* also states that only the coarser kinds of fish are found in his district. These are as plentiful as formerly, but farmers are too busy to devote much time to fishing. The fishery laws are reported as well obeyed.

## LAKE NIPISSING.

*Overseer J. S. Richardson* says that there were no net licenses issued in this lake last season, and that the hook and line catch was small, its total value being given at \$1,170.

## PARRY SOUND AND MUSKOKA DIVISIONS.

*Overseer Geo. R. Steele* states that, as it is very difficult to ascertain with any accuracy the quantities of fish caught in the lakes under his charge, he can give an estimate only. The close seasons were fairly well observed, only two violations coming to his notice, and as the offenders were juveniles, their fishing apparatus was merely confiscated without imposing a fine. A single case of violation of the saw-dust regulation was dealt with. There are no fish-ways in this division, and it seems that natural and artificial obstacles are such as would render fish-ways comparatively non-effective. Some complaints have reached him that several dams, especially at Deer Lake, should be provided with fish-passes, but Mr. Steele is of opinion that restocking those waters with fry would produce better results than constructing fish-ways.

*Overseer J. G. Rumsey* reports that tourists were not as numerous as formerly, but anglers reported better individual catches than during the previous season. The close seasons were fairly observed, and the spearing of fish is steadily decreasing. He seized a small net in Vernon Lake and destroyed it, but could not find the owner.

*Overseer Edmund Forsyth* states that fish are not as plentiful as formerly, owing to number of dams built during the past seven or eight years by lumbermen on nearly all the streams running into Georgian Bay. Three of these dams have been provided with fish-passes during last season. In some of these dams it will be difficult and very expensive to place fish-ways, but next season he proposes to visit and examine them more carefully.

## LAKE SIMCOE AND COUCHICHING.

*Overseers E. H. Cameron, Geo. Clark and L. S. Sanders* state that as Lake Simcoe is set apart for natural propagation of fish, no licenses are issued, and the catch by angling can only be estimated. Bass were numerous, and sportsmen were satisfied with their captures.

*Overseer Wm. McDermott* states that all kinds of fish in the inland waters of Simcoe county are at least as plentiful as ever with the exception of speckled trout, which is becoming scarce in the lower parts of the streams. Pike was plentiful, especially in the Nottawasaga River, and good bass fishing was enjoyed in Holland River. The close seasons were strictly adhered to; all rumours of illegal fishing, after investigation, proved

unfounded, with perhaps one exception, that of netting on the Holland River, which he hopes to stamp out should further attempts be made in the same direction. In fact, Mr. McDermott is pleased to notice the marked improvement in recent years in the observance of the regulations. Mill-owners have at last concluded that they cannot with impunity continue to throw mill-rubbish into the streams, and have desisted from this obnoxious practice. This officer thinks the law should define the distance from the water's edge where saw-dust may be dumped. He has noticed instances where saw-dust is piled perpendicularly on the extreme edge of the banks, so that some must necessarily fall into the stream from the least disturbing causes.

#### SCUGOG DIVISION.

*Overseer John Martin* reports a decreased catch in all kinds of fish, except coarse fish. The very high water during the fishing season was a drawback to good fishing. Bass is caught through the ice with hook and line in large quantities. The close seasons were fairly well observed. The only fish-way in his division is entirely useless. The whole catch of fish, of which maskinongé is the principal, is valued at \$24,780.

#### PETERBOROUGH DIVISION.

*Overseer Geo. W. Fitzgerald* estimates the catch of bass at 50,000 lbs.; that of maskinongé at 40,000, and mixed fish at about 30,000 lbs., valued over \$10,000. He gives a description of the numerous lakes under his charge in the counties of Peterborough and Victoria as follows:—

Katchewanook Lake, five miles long, is beautifully situated between two villages, and is frequented by bass, maskinongé, eels and herring. Fishing is very good in this lake, at the head of which there is a saw-mill.

Clear Lake, six miles long, is frequented by bass, maskinongé, and a few salmon-trout. Owing to the very high water, fishing was poor.

Stony Lake, fourteen miles long, is visited by thousands of pleasure seekers, who camp on its banks. Bass, maskinongé and salmon-trout are captured in this beautiful sheet of water, which empties into Rice Lake through Indian River.

Deer Bay Lake, eight miles long, affords the best fishing in the whole county. It consists of almost two chains of small lakes, in which large quantities of bass and maskinongé were caught this season.

Buckhorn Lake is eight miles long, and bass, maskinongé and eels are found therein. Violations of the fishery laws were discovered in this lake, and the convictions made had a salutary effect.

Chemong Lake is ten miles long. Large catches of maskinongé were made in this lake, which also contains bass. The overseer made one conviction for illegal fishing here, and a guardian was appointed to protect the fisheries.

Pigeon Lake is quite a body of water, about twelve miles long by three miles wide. Violations of the fishery regulations were reported from here, and a guardian was appointed.

Ball Lake is ten miles long with narrows. The fishing is good and no violations were reported. Fifty thousand salmon-trout fry were distributed in these waters last spring. Not far from this lake, Mr. Fitzgerald convicted a party for spearing maskinongé in the Bobcaygeon Rapids. There are two mills on this rapid unprovided with fish-passes.

Then comes Sturgeon Lake and Goose Lake. A good deal of illegal fishing is attempted here, so a guardian has been appointed to protect these lakes. Two hundred thousand salmon-trout fry were deposited in these waters last season. Another guardian has taken charge of the 18 miles of Scugog River included in this officer's district. He seized and destroyed a net, but could not discover the owner. Fishing for bass and maskinongé in this part of the stream was reported better than for years. The Fenelon Falls are 18 feet high and cannot be ascended by fish. A few might get up when the locks are opened for the passage of boats.

Cameron Lake comes next, and is about five miles long and nearly as wide. The catch of fish was small and consisted of bass and maskinongé.



Balsam Lake is a large sheet of water, where little attention was paid to the fishery regulations before this year, but several convictions will produce a good effect another year.

Next are the Coboconk Rapids, near which are the two Mud Turtle Lakes, where bass and maskinongé are reported plentiful. The fishery laws are well observed. The two mills on the above-named rapid have complied with the saw-dust regulation.

In Moore and Gull Lakes, which are about ten miles long, are found bass, trout, herring and eels. A guardian supervises these waters, and one conviction for illegal fishing has prevented further poaching.

In Deer Lake and the two Bob Lakes, the guardian reports the regulations well observed. The yield of fish therein was small.

Gull River is the outlet of a chain of lakes extending for thirty miles. Salmon-trout is the principal kind of fish in these waters. There was no guardian here this season, but there should be one. On one of his visits the overseer fined a mill-owner for allowing saw-dust, etc., to escape from his mill into the stream.

South of this river is another chain of lakes, of which Burnt River is the outlet into Cameron Lake. Bass and a few salmon-trout were all the fish that were caught in these lakes last season.

Mr. Fitzgerald found all the guardians dispersed over the large area under his supervision performing their duties faithfully and carrying out the instructions received from the department, with one exception, which was punished by dismissal.

#### WELLINGTON COUNTY AND CREDIT RIVER DIVISION.

*Overseer Andrew Hughson* states the yield of speckled trout was satisfactory during the last season, and although used for domestic purposes, this fish is highly priced. Many of the small lakes and ponds are now leased to private parties who have gone to considerable expense in procuring speckled trout fry or other fish to restock the depleted waters which formerly abounded in game fish. As several nets were seized this summer and saw-mills were not working much, all this will contribute to the increase of fish. The owners of mill-dams at Alton claim that the placing of fish-ways would leave them without a sufficient supply of water. There are three grist-mills and two roller-mills in this vicinity. Mr. Hughson thinks that an expert should be sent from the department to examine the dams above referred to.



O N T

RETURN of the Number and Value of Vessels, Boats and Fishing Material, and Number  
Ontario, for

NAME OF DISTRICT.	VESSELS, TUGS AND BOATS EMPLOYED.						
	Vessels or Tugs.				Boats.		
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.
<i>Lake Superior Division.</i>			\$			\$	
Coast extending from Pigeon River to Otter Head and Michipicoten .....	6	146	960	25	33	3300	66
Caribou Islands .....					5	800	12
Packasaw River .....					4	800	12
Pilot Harbour .....	2	184	18000	15	6	1200	18
Dog River .....					4	800	12
Gargantua .....					3	500	8
Mica Bay ..					4	800	12
Point Mamainse .....					2	400	6
Batchewna Bay .....					1	100	4
Goulais Bay ..	1	34	2000	4	1	100	3
Gros Cap .....					1	100	2
Totals. ....	9	364	20960	44	64	8900	155

## A R I O .

of Men employed, &c., with the Kinds and Quantities of Fish in the **Province of**  
the Year 1892.

FISHING MATERIAL.				KINDS OF FISH.								VALUE.	
Gill Nets.		Pound Nets.		Whitefish, barrels.	Whitefish, lbs.	Trout, lbs.	Trout, barrels.	Sturgeon, lbs.	Pickerel, lbs.	Pike, lbs.	Coarse fish, lbs.		
Fathoms.	Value.	No.	Value.										
	\$		\$									\$	cts.
28500	5500	31	4650	235	550550	295400	780	31600	40300	....	65000		89,595 00
14100	2250	2	500			197320	350						23,232 00
8000	1500	1	300	11	1200	52000	100						6,406 00
12000	2250			5	42000	88000	51						12,720 00
8000	1500			5	18000	26000	9						4,180 00
300	600	2	700	4	17000	18250	9						3,315 00
800	1500				22000	42000	15						6,110 00
400	800			10	35490	27700	3						5,739 20
		5	1800		22000	16000		15640	1500	400			4,393 40
		5	1600		18700	24730		1400	1800	200			4,153 00
		2	850		2700	4900		1200	800				818 00
72100	15900	48	10400	270	729640	792300	1317	49840	44400	600	65000		160,661 60

RETURN of the Number and Value of Vessels, Boats and

NAME OF DISTRICT.	VESSELS, TUGS AND BOATS EMPLOYED.						FISHING MATERIAL.						
	Vessels or Tugs.				Boats.		Gill Nets.		Seines.		Pound Nets.		
	No.	Tonnage.	Value.	Men.	No.	Value.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.	
<i>Manitoulin Islands, North Channel and Vicinity.</i>			\$			\$		\$		\$		\$	
St. Joseph Island .....					1	200	2	104	85		1	400	
Kashkawong Point .....					3	600	7				4	2200	
Seine Islands .....					2	150	6				3	900	
Cockburn Islands .....	1	20	1000	3	2	400	8	294	1380		9	2600	
Burnt Island .....	1	25	1000	7	1	150	3	1950	2000		5	1500	
Duck Islands .....	3	75	6000	18	14	5000	28	9750	17500		5	1500	
South Bay .....	1	15	1000	4	4	600	14	30000	3000		9	2700	
Fitzwilliam Island .....					2	150	4			70	80		
Squaw Island .....	3	75	6000	15	24	3000	56	10000	6760				
Little Current .....					6	1200	12	2500	2000				
Kagawong .....					4	800	8	1200	1350				
Gore Bay .....	1	49	2000	6	2	300	5	1300	1000		7	3500	
Cape Roberts .....					2	400	8				7	2000	
Thessalon .....					4	450	4	1600	1000		4	1100	
Grand Batture .....					1	140	2				2	1000	
Hennepin Island .....					1	150	3				4	1500	
Grant Islands .....					2	400	5	935	1000				
Missaqua Islands .....	1	11	1800	7	2	200	4	7000	2000		1	300	
Algoma Mills .....					2	400	4				4	800	
Newport .....	1	25	600	5	5	1000	12	1664	1750		5	2000	
Killarney .....					33	6600	68	69880	75000				
French River .....					5	1000	15	5600	1500				
Totals .....	12	295	19400	65	122	23290	278	143777	117325	70	80	70	24000
<i>Georgian Bay Division.</i>													
From French River to Cape Hurd, including Waubesa, Midland, Collingwood, Owen Sound, Colpo's Bay, and all islands around said coast .....	11	255	50000	75	133	30000	350	40000	80000	420	1500	...	...

## Fishing Material, &amp;c., in the Province of Ontario—Continued.

KINDS OF FISH.												VALUE.
Whitefish, brls.	Whitefish, lbs.	Trout, lbs.	Trout, brls.	Herring, brls.	Herring, fresh, lbs.	Sturgeon, lbs.	Maskinongé, lbs.	Bass, lbs.	Pickarel, lbs.	Pike, lbs.	Mixed coarse fish, lbs.	
5	3000	4000	10			300			500	200	2000	\$ 903 00
44	41340	9741				900			4950	3500	7600	5,425 80
100	20000								1000			2,650 00
	67000	35000				750			33500			10,580 00
	45320	46208				2300						8,384 30
	53314	43800				1570			110			47,444 82
	118100	200000				1000			10000			30,008 00
	20000	55000									200	7,006 00
	341140	341150										61,406 20
	35000	35000				3000	300	500	2000	7000		6,978 00
	135132	8830										11,693 56
	70800	45800				27000			20100			12,869 00
	74700	13520				9000		500	13540	1000		8,625 00
	51040	26660										6,749 20
	10400	2500				2500				400		1,252 00
	13340	13300				1550			1182	300	500	2,579 30
	32720	23560				100			50	100		4,987 10
	60000	40000				1000			2000			8,960 00
	22100	150				1720			3750			2,073 70
	401460	2210				54280			67800	580		39,013 60
165	287000	30700	10			10462	1000	2050	106640	39300		35,887 72
	37000	8600				300	4200	200	12000	13000		7,620 00
314	1939906	1372729	20			117732	43300	3250	279122	65380	10300	323,196 40
		1380729										
83	3610800	1802630		107	332600	26900		1800	479400	35700	131800	515,173 50



## RETURN of the Number and Value of Vessels, Boats and

NAME OF DISTRICT.	VESSELS, TUGS AND BOATS EMPLOYED.							FISHING MATERIAL.							
	Vessels or Tugs.				Boats.			Gill Nets.		Seines.		Pound Nets.		Hoop Nets.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.	No.	Value.
<i>Lake Huron Division.</i>			\$			\$			\$		\$		\$		\$
Tobermoray .....	3	70	9000	20	4	800	12	60000	6000						
Big and Little Eagle .....					4	400	9	6000	400						
Big and Little River .....					5	750	11	9000	650						
Greenock and Pleasant Har-					6	800	18	18000	1400						
bour .....					6	900	17	15000	1150						
Stokes Bay and Lyall Island.					10	300	60	500	50	4000	1000				
Sauble Beach .....															
*Saugeen River .....	2	44	4000	12	4	600	12	36000	3400						
Southampton .....					2	100	4	800	80						
Inverhuron .....					4	600	12	12000	1000						
Kincardine .....	3	84	9000	18	25	1350	55	72000	9000			4	1200		
Goderich and vicinity .....															
Bayfield, Grand Bend and	1	25	1000	7	23	1020	56	3500	875	2300	400	32	3400		
Blue Point .....	*				17	525	51			600	2100				
Blue Point to Point Edward..															
Totals .....	9	223	23000	57	110	8145	317	232450	24005	6900	3500	36	4600		
<i>Lake St. Clair Division, in-</i>															
<i>cluding tributaries and</i>															
<i>Detroit River.</i>															
Mitchell's Point .....	2	3	230	3	8	145	15			950	775				
Thames River .....					31	266	106			680	580			5	50
Dover East to Stony Point...					11	330	40			440	1460				
Stony Point to Windsor .....					9	375	22			80	170	4	575		
Detroit River, including Bois															
Blanc and Fighting Islands.	1	10	800	2	14	300	60			440	1000			2	65
Totals .....	3	13	1030	5	73	1416	243			2590	3985	4	575	7	115

\* Angling. Speckled trout.

## Fishing Material, &amp;c., in the Province of Ontario, &amp;c.—Continued.

KINDS OF FISH.											VALUE.
Whitefish, barrels.	Whitefish, lbs.	Trout, lbs.	Trout, barrels.	Herring, barrels.	Herring, fresh, lbs.	Sturgeon, lbs.	Maskinongé, lbs.	Bass, lbs.	Pickarel, lbs.	Pike, lbs.	
											\$ cts.
40	180000	400000	100	300	40000	.....	.....	.....	10000	.....	58,200 00
100	50000	60000	150	300	.....	.....	.....	.....	.....	10000	13,850 00
80	30000	70000	160	400	.....	.....	.....	.....	.....	.....	13,600 00
50	30000	120000	160	300	.....	.....	.....	.....	.....	.....	17,850 00
.....	20000	135000	.....	200	200000	.....	.....	.....	.....	.....	15,100 00
.....	.....	40000	.....	400	80000	.....	.....	.....	.....	.....	14,900 00
.....	60000	340000	.....	.....	10000	.....	.....	10000	10000	600	4,000 00
.....	.....	.....	.....	.....	6000	.....	.....	2000	1000	.....	50,930 00
.....	10000	75000	.....	.....	20000	4000	.....	18000	3000	400	10,000 00
.....	85000	450000	.....	.....	.....	.....	.....	.....	.....	.....	134,000 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,730 00
.....	58250	102000	.....	.....	77300	48300	.....	.....	55860	.....	160,000 00
.....	800	7900	.....	200	61350	32818	.....	.....	75755	400	58,895 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24,747 00
270	524050	1799900	570	1800	494650	85118	.....	30000	155615	1500	10,014 83
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	295,516 83
.....	.....	.....	.....	.....	.....	.....	.....	7580	470	1656	1,045 75
.....	31000	43400	.....	620	155000	210	550	5500	67000	3060	16155
.....	.....	.....	.....	.....	.....	1800	1000	14600	209000	6700	132100
.....	2050	.....	.....	.....	1900	45350	700	1220	2350	830	207400
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18,051 00
.....	24000	.....	.....	.....	2000	200	.....	200	2200	725	17600
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,763 20
.....	57050	43400	.....	620	158900	47560	2250	29100	281020	12971	2,725 25
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18500
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,725 25
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49,236 80

RETURN of the Number and Value of Vessels, Boats and

NAME OF DISTRICT.	VESSELS, TUGS AND BOATS EMPLOYED.						FISHING MATERIAL.				
	Vessels or Tugs.				Boats.		Gill Nets.		Seines.		
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.
<i>Lake Erie Division.</i>			\$			\$			\$		\$
Point Pelee Island.....					16	2750	31				
Polchester.....	1	12	3500	3	10	700	13				
Kingsville.....					8	875	9				
Point Pelee (Mainland).....					27	2900	38	1000	150		
Wheatly.....					1	100	2				
Coast fronting on County Kent.....	1	198	12000	11	49	5030	60	800	90	250	300
New Glasgow.....					1	100	4				
Eagle.....					5	395	9				
Tyrconnel.....					4	450	7				
Port Stanley.....	4	125	18800	18	14	2380	21				
Port Bruce.....	2	20	2800	14	6	800	14			250	175
Port Burwell.....	3	30	5500	9							
Houghton to Rainham, including inner and outer bays and Turkey Point.....	7	89	9200	17	49	2810	118	6350	900	4930	2400
Long Point Island.....	2	45	4000	5	12	1400	27	1500	600	1050	900
Cayuga to Moulton Bay.....	2	22	4000	4	19	472	32	6000	2300	310	450
Low Banks.....					10	400	20	1500	250	650	400
Port Colborne.....					7	450	10	3400	550		
Ridgeway.....	1	12	3000	2	2	125	3				
Port Erie.....					5	260	14	1800	250	400	150
Totals.....	23	553	62800	83	245	22397	432	22350	5090	7840	4775

Fishing Material, &c., in the Province of Ontario, &c.—*Continued.*

Pound Nets.		KINDS OF FISH.									VALUE.
		Whitefish, lbs.	Herring, barrels.	Herring, fresh, lbs.	Eels, lbs.	Sturgeon, lbs.	Maskinongé, lbs.	Bass, lbs.	Pickarel, lbs.	Pike, lbs.	
No.	Value.										\$ cts.
29	7750	19000	.....	163800	.....	52250	.....	15450	33000	.....	14,789 00
10	4050	10900	.....	157000	.....	10400	.....	2300	6300	8600	10,219 00
6	2650	6120	.....	136750	.....	7300	100	850	5330	700	8,118 10
31	13100	48200	.....	1718900	.....	45900	.....	5780	44460	78500	88,313 80
1	400	5000	.....	16000	.....	10000	.....	.....	15000	4000	2,590 00
44	13200	76120	.....	2148900	.....	96200	.....	12950	299160	.....	123,200 60
5	1500	1000	.....	128400	.....	5000	.....	100	17000	.....	6,552 00
8	2250	7440	.....	107460	.....	26860	.....	.....	103000	.....	11,718 20
6	2600	13800	.....	215000	.....	16000	.....	.....	55000	.....	13,699 00
17	7900	28500	.....	555000	.....	11800	.....	.....	165500	.....	33,523 00
10	3700	16350	.....	66450	.....	8470	.....	.....	275665	.....	18,932 45
9	2700	9170	.....	58240	.....	4450	.....	.....	172660	.....	12,227 20
21	6300	46000	.....	305480	.....	29330	700	8530	175800	17600	33,972 80
10	3000	10250	.....	5800	.....	22300	600	7100	11700	10800	4,655 00
.....	.....	3000	800	123300	.....	350	500	1700	92250	7100	18,182 50
.....	.....	10000	.....	27700	1000	400	.....	400	4140	500	2,458 00
.....	.....	1100	.....	14400	.....	1800	.....	300	9150	.....	1,517 50
3	2000	.....	.....	10000	.....	12000	.....	.....	4000	.....	1,620 00
.....	.....	.....	.....	7700	.....	3000	.....	.....	5000	2000	1,618 00
210	73100	311950	800	5966280	1000	362310	1900	55460	1494115	129800	407,906 15



## RETURN of the Number and Value of Vessels, Boats and

NAME OF DISTRICT.	VESSELS, TUGS AND BOATS EMPLOYED.							FISHING MATERIAL.							
	Vessels or Tugs.				Boats.			Gill Nets.		Seines.		Pound Nets.		Hoop Nets.	
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.	Number.	Value.
<i>Lake Ontario Division, including Niagara River and other tributaries.</i>			\$			\$			\$		\$		\$		\$
Niagara River .....					11	700	25	7200	750	425	225	*3	375		
Port Dalhousie .....	1	8	1200	3	5	500	9	7000	1400	125	130				
Beamsville and Grimsby .....					11	700	20	9400	1225	25	25				
Burlington Beach .....					21	10630	35	19200	2525	850	500				
Bronte .....					14	2000	50	43400	4700						
Port Credit to Port Union .....	5	40	820	9	3	340	4	10000	1260	320	200			8	16
Pickering Harbour .....					5	450	9	700	325	20					
Bowmanville .....					3	65	6	500	100	180	150				
Cobourg .....					4	225	8	2000	240	60	60				
Grafton .....					1	30	2	60	50						
Haldimand .....					1	25	2	500	100						
Murray .....					2	50	4	80	100						
Brighton .....					9	400	19	3000	360					9	180
Rice Lake .....															
Trent River .....															
<i>Prince Edward County Division.</i>															
Wellington Beach .....	4	175	9000	20	60	12000	100	22000	4160	800	200	..	..	90	2000
Weller's Beach .....															
Smith's Bay .....															
Bay of Quinté .....					68	1605	195	4600	890	1850	3120			72	1930
Lake coast fronting on Lennox and Addington .....					40	810	48	1790	710	110	235			29	580
Amherst Island .....					4	60	8	1350	125						
Wolfe Island .....					2	65	4							7	110
Howe Island .....					6	100	6	1575	170					4	120
Totals .....	10	223	11020	32	270	30755	554	144355	19190	4765	4845	*3	375	219	4936

\* Machines.

Fishing Material, &c., in the Province of Ontario, &c.—*Continued.*

KINDS OF FISH.												VALUE.
Whitefish, brls.	Whitefish, lbs.	Trout, lbs.	Herring, brls.	Herring, fresh, lbs.	Eels, lbs.	Sturgeon, lbs.	Maslinongé, lbs.	Bass, lbs.	Pickered, lbs.	Pike, lbs.	Mixed coarse fish, lbs.	
												\$ cts.
...	200	300	...	73600	150	24900	100	47700	111100	...	75400	15,178 00
...	200	100	...	137000	1000	2500	...	1000	4200	8000	13600	6,794 00
...	...	...	...	136650	...	200	...	...	2000	...	16500	6,073 00
...	7800	11600	...	179500	350	200	...	55000	700	72200	56650	17,641 50
...	...	3000	...	998000	400	...	...	700	...	1000	11000	40,666 00
50	14200	1000	9	277510	300	...	...	100	200	1350	12700	13,359 40
...	200	150	...	48000	...	...	...	...	...	700	...	1,986 00
...	...	200	...	...	...	...	...	...	...	...	1500	65 00
...	100	800	...	4000	100	...	...	...	...	...	1000	284 00
...	...	...	...	...	...	...	...	...	...	...	1000	30 00
...	...	1000	...	...	...	...	...	...	...	...	...	100 00
...	...	...	...	...	...	...	...	...	...	1000	2000	110 00
...	...	17000	...	21250	...	...	...	...	...	16750	14260	3,815 30
...	...	...	...	...	...	...	50000	40000	...	...	...	5,400 00
...	...	2000	...	...	9000	1500	50000	45000	32000	30000	50000	11,130 00
...	...	...	...	...	...	...	...	...	...	...	...	...
...	300000	160000	...	40000	...	...	20000	...	20000	160000	220000	58,400 00
43	48300	...	210	40800	30000	625	1400	3850	28700	34660	164000	17,111 50
...	71000	...	...	1700	8400	...	...	2600	5900	9800	40200	8,399 00
...	20000	...	...	...	1300	...	...	...	...	2200	8100	1,600 00
...	...	...	...	...	900	800	...	170	...	6400	1100	431 00
...	...	...	...	...	...	...	...	...	...	...	...	465 20
93	462000	197150	219	1958010	51900	30725	121500	196120	204800	344060	689010	209,038 90

RETURN of the Number and Value of Vessels, Boats and

NAME OF DISTRICT.	VESSELS, TUGS AND BOATS EMPLOYED.						FISHING MATERIAL.				
	Vessels or Tugs.				Boats.		Gill Nets.		Hoop Nets.		
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.
<i>Frontenac, Leeds and Lanark Divisions.</i>			\$			\$			\$		\$
Kingston, Storrington and Pittsburg .....					9	450	9	1290	430	15	150
Gananoque.....											
Inland waters, Frontenac .....											
“ Leeds and Lanark, including Charleston and Beverly Lakes .....					6	200	10			21	540
Totals.....					15	650	19	1290	430	36	690
St. Lawrence River, fronting on the counties of Grenville, Dundas, Stormont and Glen- garry .....											
Ottawa River, fronting on the counties of Prescott, Russell and Carleton.....											
Ottawa River, fronting on the county of Renfrew, including all tributaries .....											
Lake Nipissing Division.....											
Parry Sound and Muskoka Division.....											
Lake Simcoe Division.....											
Lake and River Scugog Division.....											
Peterborough County and vicinity, includ- ing part of Otonabee River .....											
Wellington and neighbouring counties, in- cluding Credit River.....											

\* Estimated.

Fishing Material, &c., in the Province of Ontario, &c.—*Continued.*

KINDS OF FISH.										VALUE.
Whitefish, lbs.	Trout, lbs.	Herring, fresh, lbs.	Eels, lbs.	Sturgeon, lbs.	Maskinongé, lbs.	Bass, lbs.	Pickereel, lbs.	Pike, lbs.	Mixed and coarse fish, lbs.	
										\$ cts.
			700					15400	23000	1,502 00
			10000	13000	3000	14060	2000	28125	28000	4,749 85
2000	20250	6500	1000		200	7000	3000	6000	3000	3,477 00
	4000	1000	400			11300	1000	6800	38400	2,684 00
2000	24250	7500	12100	13000	3200	32360	6000	56325	92400	12,412 85
			3500	5000	2000	36200	1850	73700	7000	6,789 50
			1550	400	3050	4900	4300	10400	30800	2,253 00
	3000	300	1500	3600	2100	3600	5500	12000	8300	2,084
					5000	2000		15000		1,170
	41500				4500	11400	10300	7000	29000	6,839
	20000			25000		35000	7000	40000	20000	*8,550 00
			3000		240000	90000			160000	24,780 00
			1500		60000	99000			40000	10,830 00
	50000					6000		2000	10000	*5,760





RECAPITULATION of the Number and Value of Vessels, Boats and Fishing Material, &c.—Province of Ontario—*Continued.*

NAME OF DIVISION.	KINDS OF FISH.													VALUE. \$ cts.
	Whitefish, barrels.	Whitefish, lbs.	Trout, lbs.	Trout, barrels.	Herring, barrels.	Herring, fresh, lbs.	Eels, lbs.	Sturgeon, lbs.	Maskinongé, lbs.	Bas, lbs.	Pickereel, lbs.	Pike, lbs.	Coarse fish, lbs.	
Lake Superior.....	270	729640	792300	1317	.....	.....	.....	49840	.....	3250	44500	600	65000	160,661 60
North Channel and Manitoulin Islands.....	314	1938906	1372729	20	.....	.....	.....	117732	43300	.....	279122	63880	10300	323,196 40
Georgian Bay.....	83	3610800	1802630	.....	107	332600	.....	26900	.....	1800	479400	35700	131800	513,173 50
Lake Huron.....	270	524050	1799900	570	1800	494650	.....	85118	.....	30000	155615	1500	751800	295,516 83
Lake St. Clair.....	.....	57050	43400	.....	620	158900	.....	47560	2250	29100	281020	12971	391755	49,236 80
Lake Erie.....	.....	311950	.....	.....	800	596280	1000	362310	1900	55460	1494115	129800	1142100	407,906 15
Lake Ontario.....	93	462000	197150	.....	219	1958010	51900	307251	121500	196120	204800	344060	689010	209,038 90
Frontenac, Leeds and Lanark counties.....	.....	2000	24250	.....	.....	7500	12100	13000	3200	32360	6000	56325	92400	12,412 85
Grenville, Dundas, Stormont and Glengarry counties.	.....	.....	.....	.....	.....	.....	3500	5000	2000	36200	1850	73700	7000	6,789 50
Prescott, Russell and Carleton counties.....	.....	.....	.....	.....	.....	.....	1550	400	3050	4900	4300	10400	30800	2,253 00
Renfrew counties.....	.....	.....	3000	.....	.....	300	1500	3600	2100	3600	5500	12000	8300	2,084 00
Lake Nipissing.....	.....	.....	.....	.....	.....	.....	.....	.....	5000	2000	.....	15000	.....	1,170 00
Parry Sound and Muskoka.....	.....	.....	41500	.....	.....	.....	.....	.....	4500	11400	10300	7000	29000	6,839 00
Lake Simcoe.....	.....	.....	20000	.....	.....	.....	3000	25000	.....	35000	7000	40000	20000	8,550 00
Lake and River Seagow.....	.....	.....	.....	.....	.....	.....	.....	.....	240000	90000	.....	.....	160000	24,780 00
Peterborough county and vicinity.....	.....	.....	.....	.....	.....	.....	1500	.....	60000	99000	.....	.....	40000	10,830 00
Wellington and neighbouring inland counties.....	.....	.....	50000	.....	.....	.....	.....	.....	.....	6000	.....	2000	10000	5,760 00
Totals.....	1030	7637396	6146859	1907	3546	8918240	76050	767185	488800	636190	2973422	806436	3579265	2,042,198 53

RECAPITULATION

OF the Yield and Value of the Fisheries of the Province of Ontario, for the Year 1892.

Kinds of Fish.	Quantity.	Prices.		Value.
		\$	cts.	\$ cts.
Whitefish.....	Brls. 1,030	10	00	10,300 00
“.....	Lbs. 7,637,396	0	08	610,991 68
Trout.....	“ 6,146,859	0	10	614,685 90
“.....	Brls. 1,907	10	00	19,070 00
Herring.....	“ 3,546	4	50	15,957 00
“.....	Lbs. 8,918,240	0	04	356,729 60
Eels.....	“ 76,050	0	06	4,563 00
Sturgeon.....	“ 767,185	0	06	46,031 10
Maskinongé.....	“ 488,800	0	06	29,328 00
Bass.....	“ 636,190	0	06	38,171 40
Pickarel.....	“ 2,973,422	0	05	148,671 10
Pike.....	“ 806,436	0	05	40,321 80
Coarse fish.....	3,579,265	0	03	107,377 95
Total for 1892.....				2,042,198 53
“ 1891.....				1,806,389 68
Increase.....				235,808 85

STATEMENT

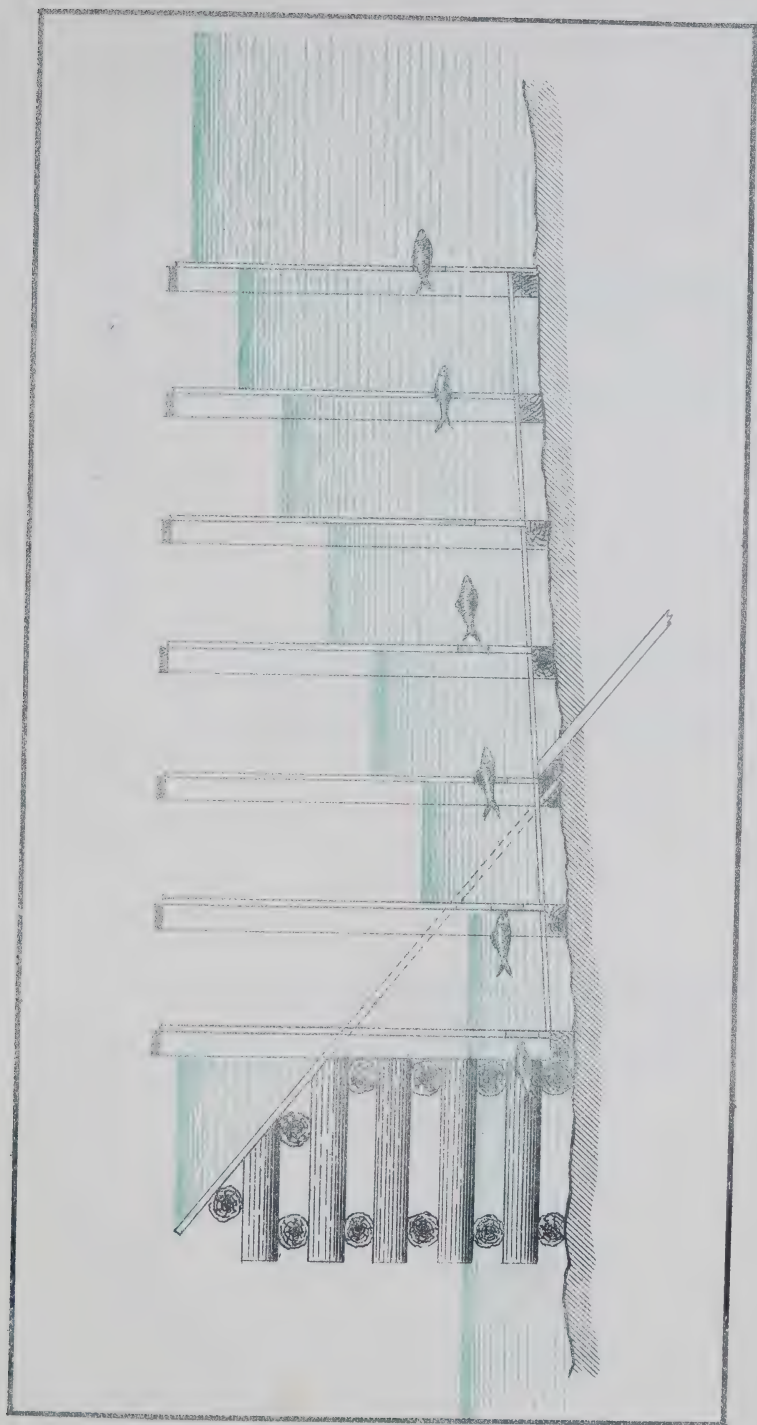
SHOWING the number of Vessels, Tugs, Boats, &c., in Ontario, for the Year 1892.

	\$ cts.
77 tugs or vessels (tonnage, 1,926).....	188,210 00
1,032 boats.....	125,553 00
1,016,322 fathoms of nets.....	261,940 00
22,585 “ seines.....	18,685 00
368 pound-nets.....	112,675 00
262 hoop-nets.....	5,741 00
Total value.....	712,804 00

Number of men employed in the Fisheries of Ontario, 1892 :—

In tugs or vessels.....	361
boats.....	2,348
Total.....	2,709

# PLATE I.



SCALE  $\frac{1}{6}$  INCH = 1 FOOT.



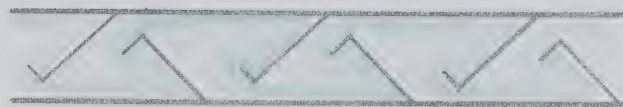


PLATE II.

*February old forms*



*Roger Fishway*

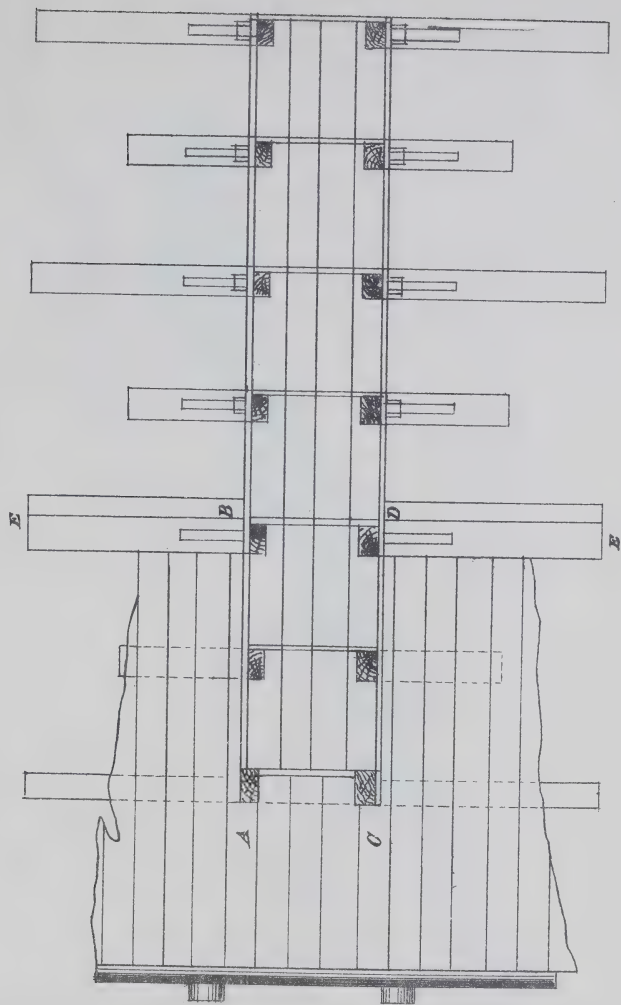
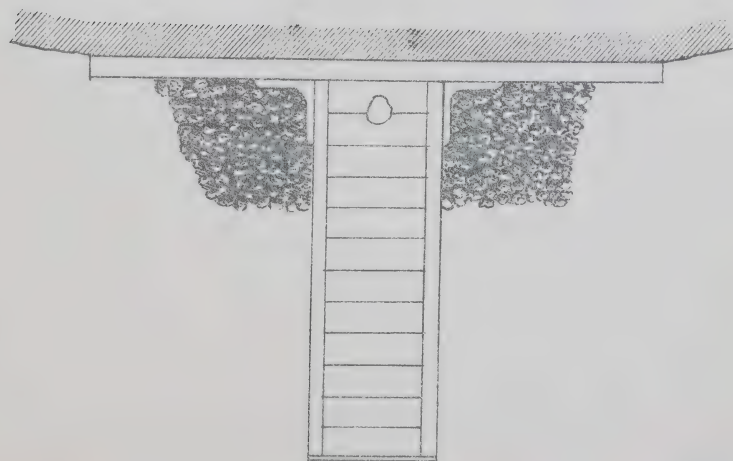


*Bracelet Fishway*





# PLATE III.

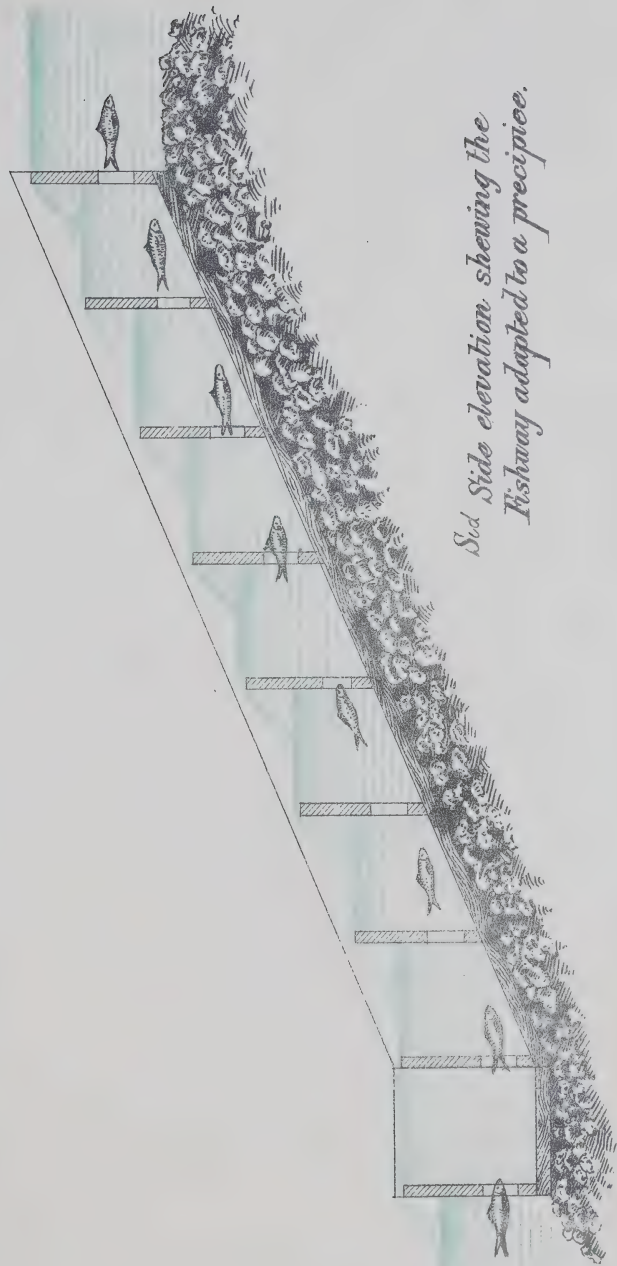


Scale  $\frac{1}{6}$  inch = 1 Foot.





# PLATE IV.

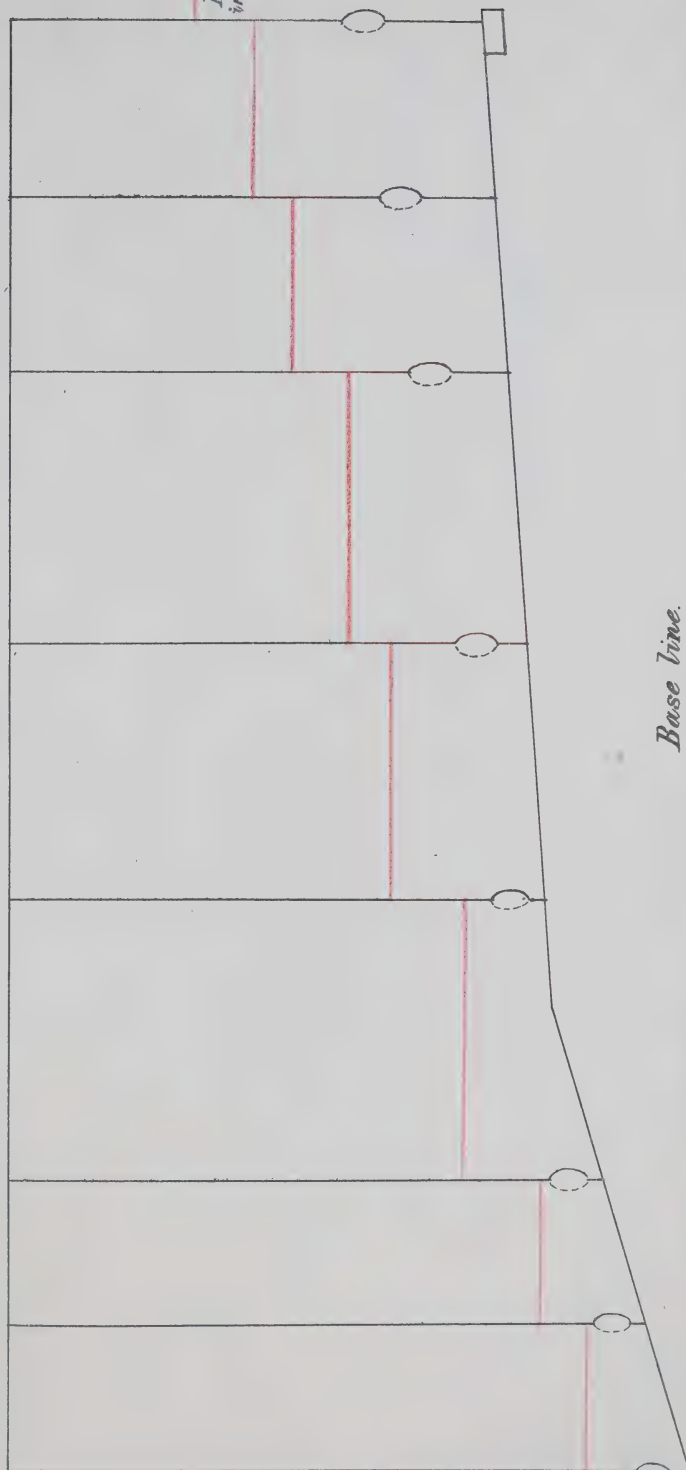


*Sid Side elevation shewing the  
Fishway adapted to a precipice.*



Side Section of Hockin Fishway constructed at Doyle's Dam Tidnish, County of Cumberland, Nova Scotia, built at the same time and made part of a Road-Bridge: compartments adapted to the upright supports of the bridge. Lines in red showing height attained by the water in the several compartments also showing incline given to fishway to adapt it to the grade.

TOP



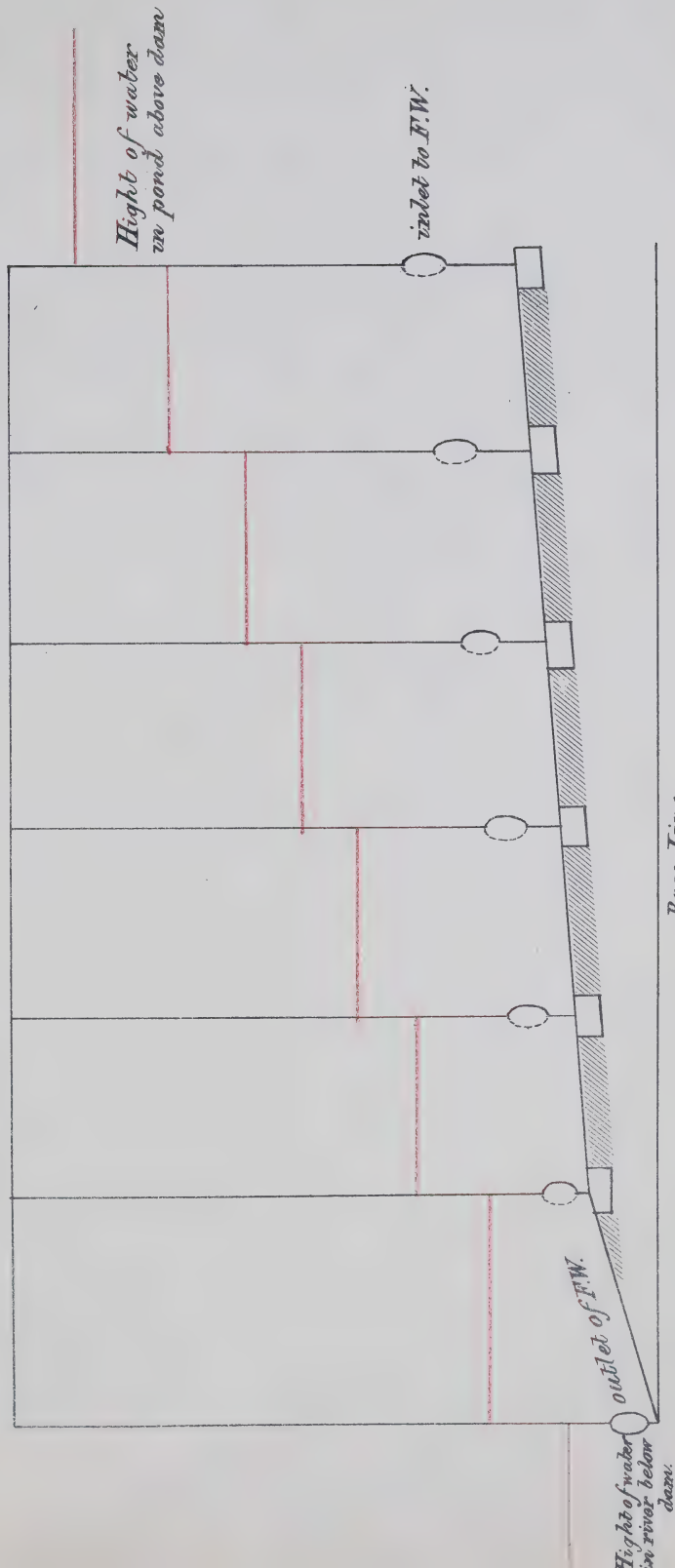
Base line.

Scale 4 feet to 1 inch.





Side Section of Hockin Fishway as constructed in Cummings Dam, Guysboro Co., N.S. Lines in red showing actual height attained by water in the several compartments.



Base Line  
Scale 4 feet to 1 Inch.



## APPENDIX H.

## FISH-WAYS.

In the statutes of Nova Scotia prior to Confederation it was enacted that :

"1. In all dams or obstructions now erected or hereafter to be erected across any river or stream frequented by salmon or gaspereaux, either one-third of the main channel shall be kept open or a fish-ladder shall be placed and kept therein.

"2. Such fish-ladder shall have a slope of not more than one foot in seven ; shall have one opening of not less than three feet in width at the top of the dam, and shall be so placed that there shall at all times be at least one foot in depth of water running over the mouth thereof, the bottom of such ladder to be water-tight and to be covered with stone, and at every six feet pieces of wood or stone to be fastened at right angles to the sides thereof, and to be secured to each side alternately, so as to make the current of water flow from side to side, the openings to be not less than one foot in width, and the pieces of wood or stone so jutting out from the sides to be not less than two feet in height ; the lower end of such fish-ladder to be secured to the bottom of the main channel of the river."

The penalty for a violation of this Act was \$100, and if a dam was kept up contrary to the Act it was liable to be prostrated.

This form of fish-way was said to be the same as in use in Great Britain. It was improved by W. H. Rogers, of Amherst, inspector of fisheries, who constructed the fish-way with projections inclining up stream at an angle about forty-five, with an additional arm at right angles to the projection : this formed a pool for a fish to rest if exhausted.

It may be mentioned here that the Brackett fish-way of Massachusetts is upon the same principle, except that the projection is at right angles to the sides and the arm at right angles to the projection. This will be better understood by reference to the sketch showing the projections in the "old form," the Roger and Brackett fish-ways.

The old form was generally built from the crest of the dam and discharged about 60 feet down stream, and, as fish instinctively follow the main stream, they seldom were known to ascend this form, having once passed the outlet they played in the pool below the dam, vainly looking for some way to ascend.

To meet this, the Roger fish-way was constructed in the pond above the dam with the discharge immediately at the dam. This was an improvement, and when kept free from debris and supplied with sufficient water, fish could ascend, but after I had examined a number of these structures and found that owing to their great length a dam of 10 feet, requiring a fish-way at least 70 feet long ; that the ice had in some cases distorted them or the freshets had torn out the brackets, or, on account of the great surface exposed to a considerable pressure, the leakage was frequently so considerable as not only to destroy their usefulness but also to injure the water power of the dam ; and unless they had frequent attendance by some interested person, sticks and other debris rendered them impassable, or else the proper gate for the admission of the water was not opened,—I endeavoured by a number of experiments to find a form of fish-way better adapted for the purpose, and succeeded in obtaining a form so simple and withal so efficient that the wonder is that it was left for the writer to find it. This form was described in the supplement No. 1 of the report of the Department of Fisheries of 1890, page 16, but for convenience this is repeated.

The fish-way consists of a series of compartments, having a floor which may be level, or have a grade of one in two, with sidewalls, ends and transverse partitions about every 4 feet of its length. From the bottom of the dam to above the water level these



compartments connected with one another and with the pond above, and the river below the dam by submerged aperture near the floor and in alignment for the passage of fish.

The water in the several compartments will be lower, step by step, from inflow to outlet. For instance, in a fish-way constructed in a dam 10 feet high, the water in the upper compartment will be about 8 feet 6 inches, in the next 6 feet, next 4 feet 6 inches, and so on, finally flowing out under a pressure of a head of, say, 2 feet, and, therefore, with so little velocity that fish can swim into the lower compartments and into the pond above.

The whole length of fish-way for a dam 10 feet high would be 28 feet. It is built from the bottom of the pond up, and with partitions fully across from floor to top every 4 feet. It is necessarily strong and compact so that ice cannot form under it, freshets cannot tear them, and the apertures being near the bottom, the floating debris cannot choke them, and the fish-way is always supplied with water.

The velocity of discharge being so reduced, the loss of water does not affect the mill-owner, especially when it is remembered that when fish are running in our rivers there is generally a full supply of water.

Patents have been obtained from Canada, United States and Great Britain. Plate 1 gives a side view of the fish-way in a dam. Not only does the light shine through the aperture discharging in the river below the dam make it quite distinct and noticeable, but the stream flowing therefrom, extending some distance into the pool or river below, cannot but be found by fish when they come up to the dam, swimming from one side to another as they do endeavouring to find a passage, they follow the stream to its source and find the fish-way.

No. 2 is a top view of the fish-way, and No. 3 a view of the upper end in the pond. No. 4 is a view of this form of fish-way adapted to a precipice. This form is used only as a *dernier ressort*, for as the water is taken from the surface one of the chief advantages of the form is lost. However, as it can be used with a grade of one in two, it is not only cheaper in construction but also adaptable to places where otherwise it would be almost impracticable to construct a fish-way. Either of the forms may be constructed of stone.

The apertures in the fish-way, as shown in plate 1, are about the same size, viz., 11 inches high and 9 inches across the apertures in the form for precipices. No. 4 are made larger from the bottom upwards.

During the year 1890 four of these fish-ways were constructed; in 1891 little was done beyond testing those built.

At the suggestion of Mr. Samuel Wilmot, Superintendent of Fish Culture, Mr. A. B. Wilmot, of the Bedford hatchery, was instructed to construct a trap at the upper end of one of these fish-ways built in the Ryno dam, on the Indian River, in the county of Halifax, and I quote from his report, a copy of which was furnished me.

"On 11th May I visited the fish-way in Ryno dam, Indian River. On my arrival I found the water very high; it stood 12 feet over the upper orifice, and as Warden N. Mason and others had informed me that salmon had been seen by himself and others in the upper compartment, and as I could not understand why the fish should remain in that compartment, I decided to place the trap at the upper end, and obtained from Halifax wire fencing with two-inch mesh and constructed a frame of poles, covered it with the netting and placed it at the head of the ladder. After waiting some days without success, I left it in charge of Warden Mason, with instructions to notify me as soon as any fish entered it, and on Saturday evening last I received word from him that some salmon were in the trap, upon which I immediately returned to the river and on raising the trap I found three salmon and as many sea trout."

This I considered satisfactory evidence of the efficiency of the ladder and that it was unnecessary to continue the test any further, and so destroyed the trap and returned home. In conclusion, I would say that a glance at this ladder in operation would satisfy the most sceptical of its capabilities for the passage of any or all kinds of fish through it.

The Ryno dam is 14 feet high and to surmount this a ladder 24 feet long is used, subdivided longitudinally into six compartments of 4 feet each, and the apertures are nine inches by eleven at the bottom and in the centre of each partition, being in line one with another.

The claim that the velocity of discharge is reduced is fully substantiated in the ladder I have tested, and I have no hesitation in saying that this plan affords a free and easy passage for any kind of fish frequenting our rivers.

In addition to the above, I have recently asked Mr. Loftus Mason, well known to the fishing gentry of Halifax, whether he had observed any salmon in the river above the fish-way. He says, under date 11th January, 1893:—"It is my opinion that the fish-way constructed after your model is the best fish-way I have yet seen, and if it is put in a dam right it will work like a charm. I have seen salmon going through and above it, and have seen them hooked in the lake above the dam, and there is no other way for them to get through, only through the fish-way. I consider it a successful plan of allowing fish to get through a dam."

In answer to inquiry from Mr. Thomas McKeen, fishery guardian in charge of the fish-way constructed in Cumminger's dam in 1890, he says, under date 10th January, 1893:—

"There have been five freshets since the fish-way was built, and three of them very heavy; neither have these nor the ice damaged the fish-way to any extent whatever."

He has visited it once every week during the fishing season, and he has never found it choked, and has often shut the water off to see. He has often seen fish in the fish-way going up. One time he shut the water off and there were gaspereaux, trout, eels and suckers in it. He has seen gaspereaux above the fish-way, and knows of no other way for them to get up. He considers the fish-way a success, and far superior to the other two plans he had to do with—indeed, it is nearly equal to the natural stream.

At the request of the secretary of the Fishery Board of Scotland a small working model was forwarded to Edinburgh in 1891, and met with the approval of the board, as the following, extracted from their report, shows:—

"In the course of last autumn, while on a visit to America, Sheriff Guthrie-Smith, the vice-chairman of the board, was much impressed by the remarkable facilities afforded by a recently invented fish-way for enabling the migratory *salmonide* to surmount dams and other obstructions in salmon rivers. The inventor is Mr. Robert Hockin, one of the inspectors of fisheries in Nova Scotia. His fish-way has been patented both in Canada and the United States of America, and has received the approbation of such competent judges as Mr. Wilmot, Superintendent of Fish Culture in Canada, and Colonel Marshall Macdonald, the head of the Fishery Commission of the United States at Washington. The vice-chairman has received plans of this fish-way, which are hereafter reproduced in our report and which will clearly show its characteristics.

"The chief object of a fish-way is to enable migratory fish to pass easily over the obstruction on which it is placed, whenever the river is in such a state as to induce them to run. No fish-way that does not fulfil this condition can be called a successful one. A fish-way should be easy of access, and should be placed in such a position as to attract the fish. It should also not be too expensive, and should not require frequent repairs. Yet how few of our fish-ways in Scotland fulfil these conditions. Either the gradient is too steep, so that the rush of water prevents the ascent of running fish; or the fish-way is made in the wrong place; or the supply of water to it is liable to be obstructed; or the fish-way itself is apt to be choked up by gravel and debris; or it is liable to be injured by freshets and ice so as to need constant repairs. It is thought that the Hockin fish-way is, in a great degree, exempt from these objections.

"Many forms of fish-way have been devised to facilitate the ascent of running fish, such as Mr. Cail's lock swimming pass in England, Colonel Macdonald's and Mr. Brackett's fish-ways in the United States of America, and the fish-way of Mr. Rogers in Canada; all of which are clever and ingenious and have been successfully applied in various parts of Europe and America. But, on the whole, the recent invention of Mr. Hockin seems, in some respects, superior to any of them. One special advantage of it is the position of the orifice through which it is supplied with water. The supply can never fail so long as there is water in the dam; and this is a great point, as the orifice is far below the level of the water in the dam. Whether the orifice will not be liable to be choked up with the gravel, which is brought down in floods, by some of our rapid Highland rivers, is a point more difficult to determine. Most of the fish-ways in Scotland are supplied



with water through a cut made in the crest of the dam ; so that whenever the water falls below the crest the supply ceases and the pass is useless."

I may say that the doubt as to whether gravel would choke the orifice on the rapid Highland rivers would not have arisen had I been fortunate enough to have shown a fish-way in working instead of the model.

Suppose, for instance, a body of gravel momentarily choked the entrance, it would at once allow the water in the several compartments to run off, and a full pressure of 8 or 10 feet would bear upon any obstruction, so that unless it was large enough to catch both sides of the orifice it must be forced through, therefore, nothing like gravel can choke the fishway.

In connection with the foregoing the following quotation from the *London Times* of 29th September, 1892, will be interesting :—

(*Times*, 29th September, 1892.)

"FISH-WAYS IN SCOTLAND.

"In referring in the *Times* of the 11th of July last to the condition of the English and Welsh salmon fisheries, as described by the inspectors acting under the direction of the Board of Trade, attention was drawn to the lamentable failures which in most instances have attended the attempts on this side of the border to insure the easy ascent of salmon along the obstructed water-ways throughout the country. From the last annual report of the Scotch Fishery Board it appears that difficulties of a similar character operate against the proper development of the Scotch salmon fisheries. The Scotch officials, indeed, seem to be in great perplexity of mind as to the most suitable way of overcoming obstacles to the ascent of salmon to the upper waters. We are told that there are about 500 miles of rivers and 40,000 acres of lochs in Scotland barred against salmon by impassable water-fall obstructions. In some instances it is suggested that the cost of enabling the fish to surmount certain barriers would probably not be repaid by the increased value of the rivers opened up. In the majority of cases, however, it is stated that the cost of overcoming the obstructions would in time be amply repaid. It seems strange, indeed, that although the want of a sufficient number of efficient salmon passes along Scotch waters has for years been a fruitful source of discontent among those interested in the subject, little or nothing has been done in the way of successfully opening up water-fall and other obstructions ; and, further than this, it is difficult to understand that, when attempts have been made to open up rivers for the free passage of salmon, the canny Scot has, in most instances, exercised little ingenuity or forethought in dealing with the matter. To illustrate this two extracts from the report in question will be sufficient. We read, for instance :—

"The Tay District Board, some years ago, placed Macdonald fish-ways on two impassable dams on the Erich ; but, unfortunately, it turned out that these fish-ways, which have proved so successful in the United States of America, are not suited to our rapid Scotch Highland streams, which, when in flood, bring down great quantities of gravel and other debris, which choke up the tubes upon which the successful action of the Macdonald fish-way depends, and so render it useless. The beautiful Highland streams, the Shee and the Ardlie, which unite to form the Erich about 6 miles above Blairgowrie, and each of which has a course of about 15 miles, are at present salmonless, because no fish can possibly surmount the obstructions at Blairgowrie."

"Further on in the report the following significant passage occurs :—

"The chief object of a fish-way is to enable migratory fish to pass easily over the obstruction on which it is placed whenever the river is in such a state as to induce them to run. No fish-way that does not fulfil this condition can be called a successful one. A fish-way should be easy of access, and should be placed in such a position as to attract the fish. It should also not be too expensive, and should not require frequent repairs. Yet how few of our fish-ways in Scotland fulfil these conditions. Either the gradient is too steep, so that the rush of water prevents the ascent of running fish ; or the fish-way is made in the wrong place ; or the supply of water to it is liable to be obstructed ; or the fish-way itself is apt to be choked up by gravel and debris ; or it is liable to be injured by freshets or ice so as to need constant repairs."

"Apparently with the view of arriving at some conclusion as to the best way of overcoming obstructions along Scotch waters, and with the object also of advising any one contemplating engaging in the important work of salmon-pass building, the report of the Scotch Fishery Board is furnished with plans of certain fish-ways which have been erected along rivers elsewhere than in Scotland. These include the celebrated Irish passes of Collooney and Ballisodare, and a plan of the 'Hockin' fish-way, which is said to have received the approbation of the Superintendent of Fish Culture in Canada, and the head of the Fishery Commission of the United States at Washington. This latter pass appears also to be favoured with the approval of the Scotch Fishery Board. We read: 'Many forms of fish-way have been devised to facilitate the ascent of running fish, such as Mr. Cail's lock swimming pass in England, Colonel Macdonald's and Mr. Brackett's fish-ways in the United States of America, and the fish-way of Mr. Rogers in Canada; all of which are clever and ingenious and have been successfully applied in various parts of Europe and America. But, on the whole, the recent invention of Mr. Hockin seems, in some respects, superior to any of them. One special advantage of it is the position of the orifice through which it is supplied with water. The supply can never fail so long as there is water in the dam; and this is a great point, as the orifice is far below the level of the water in the dam. Whether the orifice will not be liable to be choked up with the gravel, which is brought down in floods in some of our rapid Highland rivers, is a point more difficult to determine. Most of the fish-ways in Scotland are supplied with water through a cut made in the crest of the dam, so that, whenever the water falls below the crest, the supply ceases, and the pass is useless. The Scotch Fishery Board do not suggest any particular place where the Hockin fish-pass could be advantageously placed, and, as may be gathered from the above quoted extract, highly as the Board may think of the invention, it is not prepared to say that it may not be liable to be choked up with debris in times of heavy flood, and prove quite as useless as the Macdonald fish-ways erected on the Ericht. The Board are of opinion that the system of passing salmon over the falls at Ballisodare in Ireland might effectually be adopted in Scotland on the Tummel, the Conon, the Spean, and other rivers. It appears to us highly injudicious and very misleading for officials to recommend any particular form of fish-pass, unless, indeed, they are fully prepared to say definitely at what certain place such and such a device could advantageously be adopted. Difficulties more or less serious attend the opening up of all river obstructions in order that the flow of water be properly regulated to insure the easy passage of fish. As shown in the Board's own report, patent fish-passes which are said to have worked well in other parts of the world are practically useless for Scotch waters. Like England, Scotland appears to suffer from lack of talent in water engineering and salmon ladder building.

"It should be stated that as the law at present stands considerable difficulties are placed in the way of those wishing to open up obstructions for the free ascent of salmon along Scotch waters. If the proprietor of an obstruction thinks fit not to allow a fish-way to be placed on the barrier, neither the Secretary for Scotland nor the Fishery Board can move in the matter. Many proprietors do not like any interference, as they generally have a production pool immediately below the obstruction, which they fear might be injured were the obstruction opened up. Beyond this, the Crown have a claim to all the new salmon fisheries that may be created by the opening up of natural obstructions by the riparian owners, while in certain cases a proprietor below a fall may put in a claim, founded upon a charter, granting him the salmon fishings throughout a whole district of country above the fall in the event of its being opened up, although neither the fall nor the river above it are his property.' 'But for the operation of these three causes,' say the Scotch Fishery Commissioners, 'we believe that many of the natural obstructions in our Scotch salmon rivers would by this time be made passable.'

"Irrespective, however, of the want of efficient fish-ways over natural obstructions, it cannot be denied that many of the existing salmon ladders in Scotland work in a highly unsatisfactory manner, and are sadly in need of improvement."

During the year 1892 fish-ways after my model were constructed or completed in the following dams in my district:—N. L. Todd & Co.'s dam, Halifax County, Ingram River; Ross dam, River Philip, Cumberland; Ripley's dam, River Philip, Cumberland; Moses Hatfield's dam, Fox River, Cumberland; and three fish-ways, after the Roger



model, having been partially destroyed, what remained was converted to my model, viz. :—Thomas' dam, Bedford River, Halifax ; Young's dam, River Herbert, Cumberland : McLeod's dam, River John, Pictou.

Notices have been issued and my fish-way prescribed for fish-ways to be built as follows :—

2 on Apple River, Cumberland.  
 1 " Ratchford "  
 1 " Partridge Island "  
 3 " Shinimicas "  
 3 " Pugwash "  
 1 " Wallace "  
 4 " River John, Pictou.  
 1 " Toney "  
 3 " Middle "  
 4 " Barney's "  
 4 " French "  
 1 " Waugh's, Colchester.  
 1 " French "  
 1 " North River "  
 1 " East "  
 2 " Salmon "  
 1 " Bass "  
 1 " Harrington "  
 1 " Black, Antigonish.  
 1 " Little "

1 on Milford Haven, Guysboro'.  
 1 " Salmon River "  
 1 " Gaspereaux Brook "  
 1 " Moser River, Halifax.  
 3 " Salmon "  
 3 " East River, Sheet Harbour, Halifax.  
 2 " West "  
 1 " Middle "  
 1 " Tangier, Halifax.  
 2 " Jeddore "  
 1 " Preston, Salmon River, Halifax.  
 1 " Bedford River, Halifax.  
 1 " Hoosier "  
 2 " East "  
 1 " Little N.E. "  
 1 " Indian "  
 1 " Hubbard's "  
 1 " River Herbert, Hants.  
 1 " Gays, Hants.  
 2 " Jordan River, Shelburne.

In New Brunswick :—Two fish-ways were constructed on the Oromocto River, one on the Magaguadavic, and notices issued for the construction of one on the River Benjamin and one at New Mills.

In Quebec :—Two on River de Lisle ; two on River Baudette.

Notices have been issued for one on River Baudette, and one on the Chateauguay River.

In Ontario :—Two fish-ways were built on the River aux Raisins, and the following rivers were visited and plans in preparation for six fish-ways on Black River and Beaver River, Ontario. Or to recapitulate, there have been constructed twenty fish-ways, and notices have issued for the construction of seventy-five others, all of my model.

In the construction of those fish-ways which have been built, great need was felt of having some responsible person skilled in the habits and capabilities of fish and possessed of mechanical knowledge. When the plans and specifications have been placed in the hands of mill owners, and the building left to them, the result is seldom very satisfactory, and if there is anything which, if done at all, must be done right, it is the building of a fish-way. Otherwise, not only is the actual cost of building wasted, but the increased production of fish is retarded, a much more important consideration than the first. When built under the supervision of the inspector they have given satisfaction. When improperly built, not only have they brought the model into contempt, but there is a reflection upon the department.

I have the honour to be, sir,

Your obedient servant,

ROBERT HOCKIN,

*Inspector.*

## APPENDIX I.

QUESTIONS SUBMITTED BY THE DEPARTMENT OF FISHERIES, AND REPLIES THERETO BY FISHERY OFFICERS AND OTHERS REGARDING THE PRESENT STATE OF THE SEA AND INLAND FISHERIES IN THE DOMINION OF CANADA.

## SEA FISHERIES.

QUESTION No. 1.—*Are there any sea fisheries adjoining the County of?—What is their extent and value, and what kinds, quality and quantities of fish are there taken?*

### NOVA SCOTIA.

#### FISHERY OFFICERS AND OTHERS.

#### ANSWERS.

R. J. Pollock, Lower Stewiacke, County of Colchester.

About thirty miles on the coast of Bay of Fundy. The yield valued at about \$8,000, comprising salmon, 5,500 lbs.; herring, 100 brls.; smoked herring, 2,000 boxes; halibut, 2,000 lbs.; shad, 325 brls.; smelts, 15 tons.

J. D. McQueen, Little Harbour, County of Pictou.

Herring, mackerel, cod, salmon and lobsters; the last two named are of poor quality.

John McDonald, Doctor's Brook, County of Antigonish.

The whole coast of Antigonish County (over 60 miles). The catch valued between \$75,000 and \$100,000 yearly. About 55 per cent are lobsters, 7 per cent herring and salmon, 5 per cent mackerel, 6 per cent hake,  $3\frac{1}{2}$  per cent cod, and 2 per cent haddock and alewives.

C. Robin, Collas & Co., Cheticamp, County of Inverness, C.B.

Yes, a large area extending from Friar's Head to Cape Rouge, yielding \$200,000 annually, comprising cod, haddock, mackerel, herring, squid, lobsters, hake, salmon, eels and halibut.

James Coady, S. W. Margaree, County of Inverness.

Part of the Gulf of St Lawrence fronting on the County of Inverness, including the Bras d'Or lakes and Strait of Canso.

David Ross, N. E. Margaree, County of Inverness.

They are extensive and valuable; salmon, lobsters, codfish, herring and mackerel, all of good quality.

D. F. McLean, Port Hood, County of Inverness.

About 110 miles of sea-coast on the Gulf of St. Lawrence, and 50 miles on the Bras d'Or Lakes. Salmon, mackerel, herring, alewives, cod, hake, haddock, halibut, trout, squid, smelts, eels, oysters and lobsters, all taken in large quantities, valued at about \$300,000.

Lewis McKeen, Mabou, County of Inverness.

About 100 miles of sea-coast on the Gulf of St. Lawrence, and 50 miles on the Bras d'Or Lakes salmon, mackerel, herring, cod, haddock, hake, eels, lobsters, trout, squid and smelts. The total yield of this county exceeds \$350,000.

R. E. Burke, Dingwall, Aspy Bay, County of Victoria.

Various kinds of sea fisheries; mackerel, cod, herring haddock and salmon.

QUESTION NO. 1—NOVA SCOTIA—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

- Wm. Bingham, Englishtown,  
County of Victoria. All the sea-coast extending from Boularderie Island to the county line of Inverness (about 160 miles). Salmon, mackerel, herring, cod, hake, haddock, halibut, alewives, squid, caplin, lobsters, eels, oysters and smelts, of the best quality and in large quantities.
- R. G. Zwicker, Aspy Bay,  
County of Victoria. Yes, extending about 80 miles along Victoria county coast. Cod, mackerel, herring and salmon of good quality, valued at about \$70,000.
- J. W. Burke & Son, Ingonish,  
County of Victoria. The whole of the coast line of the county. Codfish, haddock, herring, mackerel, salmon, shad, hake, gaspereaux and lobsters, all of good quality.
- Wm. Burke, Mira Ferry, County  
of Cape Breton. Very extensive and valuable fisheries. Cod, haddock, mackerel, salmon, herring, and all other kinds of deep-sea fish.
- F. W. Bissett, River Bourgeois,  
County of Richmond. About 40 miles of sea-coast. Average value per annum, \$100,000. Mackerel, herring, codfish, haddock, alewives and lobsters.
- D. Grucery & Son, Descousse,  
County of Richmond. District of Descousse, south side St. Peter's Bay, about 10 miles in extent. Herring, mackerel, codfish and haddock; quantity limited, quality fair.
- Alfred Lenoir, Arichat, County  
of Richmond. Their extent is large and valuable, over \$168,180. The fish caught are mackerel, 1,215 brls.; herring, 4,929 brls.; alewives, 163 brls.; cod, 15,620 quintals; haddock, 1,901 quintals; lobsters, 279,040 cans.
- Allan McQuarrie, Sherbrooke,  
St. Mary's, Guysboro'. Extensive and valuable; about \$100,000. Fish caught are salmon, mackerel, herring, alewives, cod, pollack, hake, haddock, halibut, trout, smelts, eels and lobsters; all of good quality.
- William Cameron, Guysboro',  
County of Guysboro'. The whole coast, value about \$370,000 per annum. Salmon, 9,000 lbs.; mackerel, 6,000 brls.; herring, 18,000 brls.; alewives, 2,000 brls.; cod, 21,000 cwt.; haddock, 10,000 cwt.; halibut, 7,000 lbs.; squid, 3,500 brls.; smelts, 16,000 lbs.; and lobsters, 500,000 cans; quality good.
- ✓ G. Rowlings, Musquodoboit  
Harbour, County of Halifax. In this district there are cod, 16,558 quintals, value, \$66,230; herring, 3,170 brls., value \$11,095; mackerel, 560 brls., value \$3,160; haddock, 1,000 quintals, value \$4,000; halibut, 10,000 quintals, value \$500; hake, 100 quintals, value \$400; and lobsters, 5,454 cases, value \$52,358; all of good quality.
- W. M. Solomon, Lunenburg... Fisheries extend along the whole county, valued at \$1,496,115, consisting of cod, haddock, hake, halibut, mackerel, herring, squid, lobsters and others, all of superior quality.
- D. Evans, Chester do ... Important fisheries of great extent and value. Cod, mackerel, haddock, hake, pollack, herring, squid, alewives, salmon, trout, eels, smelts, lobsters and scallops, of very best quality.
- ✓ Thomas Day, Liverpool, County  
of Queen's. Extend the whole length of the county; annual value about \$200,000, consisting of herring, mackerel, cod, alewives, pollack, hake, haddock, halibut, lobsters, and all other kinds of sea fish.

QUESTION NO. 1—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS AND OTHERS.	ANSWERS.
Wm. J. McGill, Shelburne. . . .	Fishing grounds extend the whole length of the county. Large quantities are taken, such as cod, halibut, haddock, lobsters, mackerel, herring, &c., all of excellent quality.
S. O. Parker, Yarmouth. . . . .	Around Tusket Island and River. Cod, haddock and pollack, about 3,575 quintals; mackerel, 3,900 brls.; herring and alewives, 1,000 brls.; and lobsters, 600,000 lbs.
J. A. Hatfield, Tusket, County of Yarmouth. . . . .	Sea fisheries in this county valued at \$700,000, consisting of mackerel, 8,000 brls.; cod, 3,700 cwt.; pollack, 3,500 cwt.; haddock, 3,800 cwt.; halibut, 225,000 lbs.; lobsters, 20 tons alive and 175,000 cans; quality good.
Parker, Eakins & Co., Yarmouth.	Fish caught along the coast, consisting of cod, haddock, pollack, hake, ling, mackerel, herring and lobsters,
J. R. Kinney, Yarmouth. . . . .	The fisheries consist of cod, lobsters, mackerel and herring.
J. W. Cossaboom, Rossway, County of Digby.	Part of the Bay of Fundy, and all kinds of sea fish are caught around here.
W. M. Bailey, Round Hill, County of Annapolis.	Bay of Fundy coast and Annapolis Basin. Salmon, 7,190 lbs.; bass, 2,500 lbs.; alewives, 610 brls.; cod, 5,512 cwt.; haddock, 5,077 cwt.; pollack, 1,857 cwt.; halibut, 34,195 lbs.; herring, smoked, 21,000 boxes, pickled, 11,228 brls.; shad, 1,150 brls.; lobsters, 48,160 in number, weighing about 2 lbs. each; all of good quality.
J. S. Miller, Canning, County of King's.	About 75 miles of coast on the Bay of Fundy, value \$45,000 to \$50,000 annually. Salmon, mackerel, cod, herring, pollack, haddock, shad, halibut and lobsters; the quality is good.
P. S. Burnham, Windsor, County of Hants.	The fishery is not extensive, only shad is taken, but it is of a good quality.

NEW BRUNSWICK.

Henry Murry, Buctouche, County of Kent.	Cod, good but small; mackerel, fair; hake and ling, large; herring caught in spring used for lobster bait and home consumption.
Charles Cormier, Cocagne, County of Kent.	Mackerel, herring, alewives, codfish, salmon, smelts, bass, trout, eels, lobsters, oysters and clams, all of good quality. The quantity taken is valued about \$74,000.
Henry O'Leary, Richibucto, County of Kent.	Salmon, codfish, hake, ling, herring, mackerel, smelts, lobsters, in large quantities.
Robert Goodwin, Baie Verte, County of Westmoreland.	Seventy miles of coast line on north side, thirty miles on south side of county, all fair fishing ground. 14,000 brls. of herring and 586 brls. of shad, 500 brls. of mackerel and a small quantity of cod.
Thomas Barry, Lower Falls, County of Charlotte.	Hake, haddock, pollack, cod, herring, sardine herring taken in large quantities.
Bartholomew Brown, Campobello, County of Charlotte.	Fish valued at about \$23,466.



### QUESTION NO. 1—NEW BRUNSWICK—*Continued.*

#### FISHERY OFFICERS AND OTHERS.

#### ANSWERS.

- D. F. Campbell, St. Andrew's, Lobsters, herring, mackerel, sardines and bait, valued  
County of Charlotte. at about \$20,000.
- Frank Todd, St. Stephen, Very extensive and valuable. All kinds of fish are  
County of Charlotte. caught.
- Joseph O'Brien, St. John, Herring, cod, haddock, hake, and other sea fisheries  
County of St. John. to the value of \$160,000.
- E. V. Rourke, St. Martin's, Salmon, codfish, pollack, haddock, hake, shad, mack-  
County St. John. erel, herring and lobsters, in fair quantities.
- Sutherland Stewart, Alma, Shad fishing good.
- James Hickson, Bathurst, Very extensive, Baie des Chaleurs; value, about \$200,-  
County of Gloucester. 000. Salmon, 9,000 lbs.; mackerel, 500 brls.;  
herring, 3,000 brls.; alewives, 300 brls.; smelts,  
300,000 lbs.; lobsters, 200,000 lbs., of the first  
quality, and about 1,000 brls. for bait.
- J. G. Williston, Bay du Vin, Eighty miles sea-coast. Salmon, mackerel, shad, bass,  
County of Northumberland. alewives, herring, lobsters, cod and hake abound  
in fine quality.

### PRINCE EDWARD ISLAND.

- Daniel Davies, Murray Har- Yes; the fishery grounds range from Cape Sharp,  
bour, County of King's. about five miles distant, to the Woody Islands.  
The fish caught are cod, haddock, hake, mackerel,  
herring and lobsters.
- R. Robbler, Miminegash, Yes; lobsters, say \$350,000, codfish \$1,000, mackerel  
County of Prince. \$100,000.
- J. H. Myrick, Tignish, County Yes; valuable fisheries extend from Cape Egmont  
of Prince. to New London Head. Cod, ling or hake, had-  
dock, mackerel, herring, alewives, shad, bass,  
salmon, smelts, eels, &c.
- A. F. Larkin, County of Prince. Yes, of considerable extent, valued about \$500,000.  
Herring, cod, hake, mackerel, lobsters, trout,  
salmon, alewives, smelts and eels.

### QUEBEC.

#### *Baie des Chaleurs, County of Bonaventure :*

- J. A. Verge, Cross Point, County None.  
of Bonaventure.
- J. L. Smith, New Carlisle, Yes. Salmon, cod and herring are the principal  
County of Bonaventure. kinds of fish taken in this division. About  
10,300 lbs. of the former, 6,200 cwts. of cod, and  
27,500 brls of the latter.
- Geo. Romeril, fish dealer, Paspe- Yes, the most important of which is the Miscou or  
biac, County of Bonaventure. Orphan Bank, about 70 miles area. The total  
value of the fisheries of this county is about  
\$200,000, comprising about 30,000 qtls. of cod,  
and about 1,000 tons of herring, mackerel, smelts,  
caplin, lobsters, salmon, trout, &c.

#### *Off Gaspé county coast :*

- G. T. Annett, Peninsula, County Yes; sea fisheries are found all along the coast of  
of Gaspé. Gaspé county as follows: Halibut, herring, cod,  
haddock and mackerel, valued at over \$500,000.

QUESTION No. 1—QUEBEC—*Continued.*

*Off Gaspé county coast—Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

- A. E. Collas, Gaspé . . . . . Yes ; sea fisheries extend over 200 miles of coast, as well as banks of an area of about 150 miles. The total yield may be valued at \$400,000, and consist chiefly of about 19,000 tons of green cod ; herring and other kinds of fish, mackerel, smelts, caplin, lobsters, salmon and other fish are taken in smaller quantities.
- Alexander & Co., fish dealers, Pt. St. Pierre, County of Gaspé. Yes ; nearly all the inhabitants of this vicinity are fishermen. Cod is the staple fish here. About 100 boats, two men in each, average about 70 qtls. during the season on the banks lying outside Gaspé Basin. The catch of salmon has been small for the last few years.
- Jos. Lemieux, Mont Louis, Gaspé. There are no fishing banks in his district.
- Jos. I. Letourneau, Ste. Anne des Monts. Yes ; cod, herring, salmon and halibut are taken all along the 42 miles of coast fronting on my division.
- Johnny Joncas, Matane, County of Rimouski. Cod and herring. The former on a small scale, carried on during the fall by the farmers.
- Nap. Levesque, Isle Verte, County of Temiscouata. Yes ; the sea fisheries are valued at about \$8,000, and consist of 2,500 brls. of herring, 20 brls. of shad, 36 brls. of salmon, 850 brls. of sardines, also sturgeon, eels and coarse fish.
- Ulysse Bhereur, Murray Bay, County of Charlevoix. Yes ; 15 brls. of herring, 8,392 brls. of caplin, 1,186 brls. of salmon, 452 brls. of sardines, and 46 brls. of eels.

*North shore :*

- N. A. Comeau, Godbout, County of Saguenay. Yes ; sea fishing is prosecuted all along the 175 miles of coast of his division. The total yield may be valued at about \$17,000, comprising cod, herring, salmon, halibut, trout and mackerel, also a few seals and porpoises.
- Théotime Mignault, Moisie . . . Yes ; about 8,300 fathoms of salmon nets are used in his division, taking 225,000 lbs. of salmon.
- Gaspard Mathurin, Washecootai. About 635 fathoms of salmon nets and 20 fathoms of seines are used in his division. Forty barrels of salmon were taken, also 65 quintals of cod.
- John Legouvie, St. Augustine Division. Nil.

*The whole Gulf Division, comprising the counties of Bonaventure, Gaspé and Saguenay :*

- Wm. Wakeham . . . . . Yes ; county of Bonaventure, 85 miles of coast ; value of yield of fisheries, \$300,000. Gaspé, 320 miles of coast, value of fisheries \$750,000 ; and Saguenay, 740 miles of coast, value of catch, \$600,000.

The principal kinds of fish making up the above aggregate value of \$1,650,000 are :

Cod . . . . .	200,000 cwt.	Halibut . . . .	100,000 lbs.
Haddock . . .	2,000 cwt.	Smelt . . . . .	80,000 lbs.
Salmon . . . .	600,000 lbs.	Lobsters . . . .	1,000,000 lbs.
Trout . . . . .	25,000 lbs.	Seals . . . . .	30,000 skins
Herring . . . .	10,000 brls.	Fish oil . . . .	230,000 galls.
Mackerel . . .	5,000 brls.	Bait . . . . .	50,000 brls.
and others.			

QUESTION No. 2.—*How much fish is consumed in the neighbourhood of the fishing grounds by the inhabitants, and what quantities are sold in a fresh state? How much is consumed in Canada?*

## NOVA SCOTIA.

(NOTE—For addresses and counties *see* answers to Question No. 1.)

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

R. J. Pollock.....	All are consumed fresh, with the exception of salmon, shad and herring, which are sent to the United States.
John D. McQueen.....	A large proportion of herring caught is used for lobster bait; the remainder sold within the county fresh. Salmon and cod are consumed in Canada. Some lobsters are shipped to other countries.
John McDonald.....	Lobsters, salmon and about 50 per cent mackerel are shipped canned or sent fresh in ice to United States market, and about 40 per cent of other kinds are consumed in the county.
C. Robin, Collas & Co.....	3,000 qntls. codfish, 600 brls. herring, 200 brls. mackerel, 200 brls. eels, 5,000 lobsters, 1,000 lbs. fresh salmon, 1,000 lbs. halibut, and 100 qntls. haddock are used yearly by the inhabitants; 100,000 lbs. lobsters and 9,000 lbs. salmon are sold fresh.
James Coady.....	About 500 brls. fresh herring and about 300 qntls. codfish consumed by the inhabitants. There are also about 20 brls. mackerel, 200 qntls. codfish and about 1,000 brls. herring consumed at home.
David Ross.....	About 3,000 qntls. of fish consumed in the neighbourhood. About 12,000 lbs. fresh salmon sold to the United States. Very little fish consumed in Canada.
D. F. McLean.....	About one-half of the whole catch consumed in the neighbourhood; one-hundredth part is sold fresh, and one-fifteenth part is sold in Canada.
Lewis McKeen.....	About one-tenth of total catch consumed in the neighbourhood; about \$3,000 sold fresh, and about one-twentieth part is consumed in Canada.
R. E. Burke.....	About 1,500 qntls. cod and 1,200 brls. herring are consumed in the neighbourhood; none sold fresh to outside towns.
W. Bingham.....	About 2,360,000 lbs.; none are sold in a fresh state, they are shipped to Halifax and re-shipped to the West Indies and elsewhere.
R. G. Zwicker.....	About four-fifths are sold in a fresh state, about one-fifth consumed in Canada.
J. W. Burke & Sons.....	About 5 per cent is consumed by the fishermen; nearly all the fish is sold fresh, with the exception of herring and mackerel, which are pickled; about 5 per cent consumed in Canada.
Wm. Burke.....	About 100 qntls. codfish, 100 brls. herring, 5,000 lbs. halibut, and 1,000 lbs. of salmon are consumed in this district. The greatest portion is shipped to Halifax for exportation.
F. W. Bissett.....	About one-fifth herring and one-twentieth of codfish consumed in the county; only a few barrels of mackerel and herring sold fresh; a very small quantity consumed in Canada.

QUESTION No. 2—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

D. Grucery & Son .....	About 120,000 lbs. consumed in the neighbourhood ; a very small quantity sold fresh.
Alfred Lenoir .....	Quantity consumed in the neighbourhood : 2,350 brls. herring, 1,763 qntls. cod, 1,175 qntls. haddock, and about 3,100 brls. fresh herring used for bait ; extra, 1,000 qntls. fresh cod consumed in summer season.
Allan McQuarrie .....	About 5 per cent of total catch consumed in the neighbourhood ; only salmon sold in a fresh state, and about 25 per cent consumed in Canada.
Wm. Cameron .....	Estimated at \$25,000 consumed in the neighbourhood ; sold fresh, \$140,000. The larger quantity is sent to the foreign market.
G. Rowlings .....	About one-twentieth consumed at home, about the same sold fresh, and about one-eighth of the whole catch consumed in Canada.
W. M. Solomon .....	Consumption about 3 per cent of the entire catch, and about 5 per cent sold fresh ; little or none consumed in Canada.
Thomas Day .....	Herring and mackerel sold fresh for bait from the harbour was about \$1,400.
Wm. J. McGill .....	2,200 brls. herring, 1,646 cwt. dry fish, 2,932 cwt. fresh fish consumed by the inhabitants ; 70 cwt. fresh halibut and 3,240 cwt. live lobsters exported to the United States.
S. O. Parker .....	250 brls. herring, 400 qntls. pollack, 25 brls. alewives, one-half the mackerel and all the lobsters are sold fresh in the United States ; very few are consumed in Canada.
J. A. Hatfield .....	Estimated at 1,000 qntls. dried fish, 1,000 brls. herring, 250 brls. alewives, 250 brls. mackerel, all salt. About 5 per cent sold fresh for home consumption.
Parker, Eakins & Co. ....	None to speak of are sold fresh, and none sold in Canada
J. R. Kinney .....	All lobsters and spring mackerel are shipped to the United States and West Indies.
J. W. Cossaboom .....	A large quantity of fish is used, but it is impossible to say how much.
W. M. Bailey .....	About 1 per cent of deep-sea fish consumed in the neighbourhood ; also, all the salmon, fresh bass, 50 per cent of shad, and about 30 per cent of haddock. About 50 per cent consumed in Canada.
J. S. Miller .....	Large quantities are sold fresh all over the county. Herring and dry fish are sent to the West Indies, and about one-half the haddock are used at home.
S. P. Burnham .....	On an average, probably 50 brls. salt fish and 150 brls. of fresh fish, and about 50 brls. consumed in Canada.

NEW BRUNSWICK.

Henry Murry .....	Sold in small quantities. All.
Charles Cormier .....	\$8,000 worth of fish consumed in neighbourhood. \$66,000 fish sold fresh, of which \$16,000 consumed in Canada.



QUESTION No. 2—NEW BRUNSWICK—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

Henry O'Leary.....	Consumed in neighbourhood, 3 per cent. Mackerel and smelts sent to United States and lobsters principally to Europe.
Robert Goodwin.....	One-fourth consumed by inhabitants; one-fourth sold in a fresh state; half used as bait. All consumed in Canada, with the exception of about 50 barrels shad, shipped to United States.
Thomas Barry.....	Consumed in Canada, except salmon which is shipped to United States
B. Brown.....	150 qntls. consumed by inhabitants; 1,000 qntls. haddock sold fresh. All consumed in Dominion.
F. D. Campbell.....	Greater portion sent to United States, remainder consumed in neighbourhood.
Joseph O'Brien.....	One-fourth part are sold in neighbourhood, remainder exported, both fresh and pickled, to West Indies and United States.
E. V. Rourke.....	Two-thirds consumed in district; one-third exported fresh.
S. Stewart.....	Mostly consumed near fishing grounds. All consumed in Canada.
James Hickson.....	One-fourth consumed in neighbourhood; one-fourth to Montreal and remainder to United States.

## PRINCE EDWARD ISLAND.

Daniel Davies.....	About one-half is consumed locally, the remainder is cured or partially so.
R. Robbler.....	Salt and fresh fish consumed in this county about \$150,000. No fresh fish shipped, carriage being too slow.
J. H. Myrick.....	All fish caught is consumed by inhabitants, except mackerel which is exported. The principal part of catch is cured.
A. F. Larkin.....	A large consumption, chiefly cod and hake; the herring is used as bait and food. Large quantities of mackerel, smelts and eels exported fresh to United States.

## QUEBEC.

J. A. Verge.....	About 10,000 lbs of fresh salmon, trout and smelts are used for local consumption in his district.
J. L. Smith.....	4,560 barrels of fish were used in this division last year. The quantity sold fresh not known.
George Romeril.....	About 100 tons, chiefly of codfish, are consumed by the inhabitants, and none is disposed of fresh, except salmon, trout and smelt of which about 100 tons are used in Canada.
G. T. Annett.....	The local consumption would be about 8,000 barrels, sold fresh about 400 barrels. The average consumed by fishermen's families would be about $3\frac{1}{2}$ barrels.
A. E. Collas.....	About 200 tons chiefly of cod are consumed by the inhabitants. With the exception of salmon and smelts, very little fish is sold fresh.

QUESTION No. 2—QUEBEC—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

Alexander & Co.....	Cannot state the quantities. Most of the fish consumed by fishermen are herring which is prepared as a winter fish. Cod is all sold to fish merchants, who cure it for foreign markets.
Joseph Lemieux.....	About 8,000 barrels in this county and about 12,000 lbs. in Quebec and Montreal.
J. I. Letourneau.....	882 barrels used by the inhabitants and 6,160 qncls. of green cod sold.
Johnny Joncas.....	All fish is used for home consumption.
Nap. Levesque.....	About one-third of the catch is consumed by the inhabitants of the neighbourhood, another third sold fresh used in Canada, and the balance shipped fresh to United States markets.
U. Bhereur.....	All fish consumed in Canada. All sold fresh except eels which are salted.
N. A. Comeau.....	About 300 barrels of mixed fish would be used for home consumption. About \$3,500 worth of salmon, trout and halibut were sold fresh last season. Most of the fish shipped to Quebec market, probably all consumed in Canada.
Theo. Mignault.....	77 barrels of salmon were used by the settlers, and about 250,239 lbs. of salmon and halibut were sold fresh last year.
G. Mathurin.....	About 6 barrels of fish were used by the inhabitants of the localities.
John Legouvie.....	Nil.

*Gulf Division :*

Wm. Wakeham.....	About 25,000 barrels of fish consumed on the coast. Only salmon, trout, smelt, and lobsters are sold fresh, $\frac{9}{10}$ of which goes to United States markets, except lobsters, which are mostly shipped to England. Mackerel is exported in about the same proportion. Cod about 10,000 cwt. sold in Canada, balance exported to foreign ports.
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QUESTION No. 3.—*How much dried or pickled fish, product of our fisheries, is consumed in Canada, and what quantities and kinds are exported to foreign countries, and to what countries ?*

NOVA SCOTIA.

NOTE—For addresses and districts *see* answers to Question No. 1.

R. J. Pollock.....	The entire product of dried herring, 2,000 boxes, about 300 barrels of shad and 2,500 lbs. of salmon are marketed in Boston.
J. D. McQueen.....	Most of the fish is consumed within the county. Lobsters are shipped to England and the United States.
John McDonald.....	Some dried and pickled fish are shipped to Halifax. Fresh salmon and 50 p.c. mackerel are packed in ice and shipped to Halifax and United States. Lobsters canned for export.
C. Robin, Collas & Co.....	Unable to furnish the required information.

QUESTION NO. 3—NOVA SCOTIA—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

James Coady .....	About 500 quintals of fresh codfish sent to Truro, New Glasgow, Halifax, Moncton and St. John. Also about 2,000 barrels mackerel and 300 barrels herring exported to United States.
David Ross .....	Very little dried and pickled fish consumed in Canada, but is exported to the following places:—Brazil, West Indies and Naples, mackerel to United States and lobsters to England.
D. F. McLean.....	About one-thirtieth part of whole catch consumed in Canada, the remainder consisting of mackerel, herring, salmon, cod, haddock, hake, lobsters, and eels are sent to the West Indies, United States and Europe.
Lewis McKeen .....	About one-fifteenth part consumed in Canada, the remainder is exported to the West Indies, United States and Europe.
R. E. Burke.....	Dry cod to West Indies. Pickled cod, mackerel and salmon to the United States.
W. Bingham.....	Salmon, herring, mackerel, cod, haddock and alewives are all shipped to Halifax, and reshipped to Montreal, West Indies and Europe.
R. G. Zwicker .....	About one-fifth consumed in Canada, and the remainder consisting of cod, mackerel and salmon are exported to United States, West Indies and South America.
J. W. Burke & Sons.....	About $\frac{1}{5}$ is consumed in Canada; the remainder is exported, chiefly to United States, West Indies, Brazil, &c. Lobsters are chiefly sent to Europe.
William Burke .....	Consumption of fish in Canada not known. Codfish, haddock, herring, mackerel and salmon also canned; lobsters are exported to foreign countries.
F. W. Bissett.....	Fish exported are cod, haddock, herring, mackerel, alewives and lobsters to United States, West Indies, South America and Europe.
D. Grucery & Son.....	Canadian consumption of fish not known. About 10,000 cwt. of herring, alewives, cod and haddock are sent to Halifax for exportation to the United States, West Indies and South America.
Alfred Lenoir.....	About 3,500 quintals of dry fish and 2,350 barrels of pickled fish consumed in this division, and 6,600 quintals of dry cod and haddock are exported to West Indies, South America and European markets.
Allan McQuarrie.....	About 10 per cent consumed in Canada, 30 per cent of salmon, mackerel, herring and lobsters are sent to the United States; the remainder are sent to the West Indies, South America and Great Britain.
G. Rowlings.....	About one-eighth consumed in Canada, the remainder shipped to West Indies.
W. M. Solomon.....	About 5 per cent consumed in Canada. 60 per cent mackerel, 20 per cent herring, and 5 per cent cod are sent to United States, the balance is sent to the West Indies (British and Spanish).

QUESTION No. 3—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

Thomas Day.....	Cod, herring, mackerel, salmon and canned lobsters are exported to the United States, West Indies and Great Britain.
W. J. McGill.....	Consumed in Canada, 4,236 cwt. cod, 2,287 cwt. scale fish, 818 brls. mackerel, and 5,230 brls. herring. Exported to the West Indies: 29,158 cwt. cod, 4,503 cwt. scale fish; 166 brls. mackerel, and 1,935 brls. herring. To United States: 572 cwt. cod, 49 brls. mackerel and 601 brls. herring.
S. O. Parker.....	Salted mackerel sent to the United States. Dried fish and 4,250 qntls. fish from the Banks are sent to the West Indies and European markets.
J. A. Hatfield.....	Principal part is consumed in Canada; remainder sent to the United States and West Indies.
Parker, Eakins & Co.....	About 2,000 quintals dry fish shipped to St. John for distribution in Canada. Dry haddock, pollack and ling are exported to the United States and West Indies. Value, cod, \$4.75; haddock, \$3.25, hake, \$2.25; and pollack, \$2.50 per quintal. Herring, \$3 per brl.
J. R. Kinney.....	Dried cod are exported to the West Indies and United States, more fish being sent to the United States on account of better prices being realized.
J. W. Cossaboom.....	Hake, haddock, small codfish, small mackerel and pickled herring are exported to the West Indies in large quantities.
W. M. Bailey.....	About 50 per cent consumed in Canada; the remainder is exported to the United States, West Indies and South America.
J. S. Miller.....	About half is consumed in Canada; the remainder shipped to the West Indies and United States. 2,482 qntls. cod and 3,453 brls. herrings cured. Cod worth \$4 per qntl.; shad, \$10 per brl.; herring, \$3 to \$6 per brl.; salmon, 10c. per lb. here; in Boston, from 25c. to 50c. per lb.
S. P. Burnham.....	Only about 25 brls. of shad.

NEW BRUNSWICK.

C. Cormier.....	\$5,000 dried and pickled fish consumed. None exported.
Henry O'Leary.....	All consumed in Canada.
Robert Goodwin.....	All consumed in Canada, with the exception of about 50 brls. of shad shipped to the United States.
Thomas Barry.....	Not much consumed in Canada. Large quantities shipped to West Indies and the United States.
B. Brown.....	Half consumed in Canada, the remainder sent to the United States.
Joseph O'Brien.....	Half consumed in Canada, the remainder exported to the West Indies.
Jas. Hickson.....	Quarter consumed in Canada, remainder exported to United States and Europe.

PRINCE EDWARD ISLAND.

Daniel Davies.....	About 6,000 qntls. are exported, and as many more for local consumption.
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QUESTION NO. 3—PRINCE EDWARD ISLAND—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

J. H. Myrick. ....	Say 50 per cent of cod, hake and haddock ; 75 per cent herring ; 1 per cent mackerel, consumed in Canada. Mackerel exported to the United States and the other kinds to West Indies.
A. T. Larkin. ....	No export from this county to the other provinces. Considerable quantity of pickled mackerel exported to the United States.

## QUEBEC.

J. A. Verge. ....	No dried or pickled fish is exported from his district.
J. L. Smith. ....	The quantity of dried fish consumed in locality is not given, but 56,745 quintals of cod was exported last year to Brazil, Portugal, Italy, Jersey Islands and Barbadoes.
Geo. Romeril. ....	About 500 tons of dried and pickled fish are consumed in Canada, and 1,500 or 2,000 tons of cod, &c., are exported to Brazil, Portugal, Italy and West Indies.
G. T. Annett. ....	Cannot say.
A. E. Collas. ....	About 700 tons of their dried and pickled fish used in Canada, and 3,700 tons of cod yearly exported to Brazil, Portugal and West Indies.
Alexander & Co. ....	Cannot say how much is consumed in Canada ; from that locality most of the yield is exported to Brazil and Mediterranean ports.
Joseph Lemieux. ....	20,000 quintals of dried cod were exported to the foreign markets of Italy, Spain, Jersey Islands, West Indies and Brazil.
J. I. Letourneau. ....	About 100 quintals used here, and about 1,900 quintals exported to Europe and Brazil.
Johnny Joncas. ....	No dried or pickled fish in his district.
Nap. Levesque. ....	About 300 barrels of herring are pickled here and mostly used in Canada.
U. Bhreur. ....	None except eels ; about 50 barrels.
N. A. Comeau. ....	Nearly all the pickled fish is used in Canada. Dried cod is the only fish shipped to foreign markets, viz., to South America and West Indies.
Théo. Mignault. ....	2,128 quintals of cod were shipped to Brazil last season from this division ; the catch of halibut, trout and salmon was sent to Quebec markets and United States.
G. Mathurin. ....	65 quintals of codfish were sold to Collas, Robin & Co., to be shipped to European ports.
John Legouvie. ....	Nil.

*Gulf Division :*

Wm. Wakeham. ....	About 20,000 cwt. of cod sold in Canada, exclusive of local consumption ; the balance and 90 per cent of all other fish, except herring, is exported.
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QUESTION No. 4.—*State the price of the different kinds and qualities of fish at or near the fishing grounds ; the prices when prepared for exportation and when delivered in the markets to which they are sent, respectively.*

NOVA SCOTIA.

FISHERY OFFICERS AND OTHERS.

ANSWERS.

R. J. Pollock.....	Alewives, \$1 per cwt. ; cod, 5c. per lb ; halibut, 6c. per lb. ; herring, \$5 per barrel ; shad, \$12 per barrel ; at United States market, \$16 per barrel ; salmon, 10c. per lb. when caught and 20c. in the same market.
J. D. McQueen.....	Prices vary owing to quantities of fish taken ; herring, 15c. per doz. ; cod, 6c. per lb. ; salmon, 15c. per lb.
John McDonald.....	Lobsters, 75c. to \$1 per 100 lbs. ; salmon, 10c. per lb. ; mackerel, 3c. to 5c. each ; cod, 1½ per lb. ; hake, 1c. per lb. ; herring, \$1.50 per barrel fresh. Prices when prepared for exportation :—Lobsters, \$5 to \$7 per case of 4 doz. ; salmon, 14c. per lb. ; cod, \$5 per cwt. ; hake, \$3 per cwt. ; haddock, \$3 per cwt.
C. Robin, Collas & Co.....	Fish fresh from the grounds :—Cod, 1c. per lb. ; haddock, ½c. per lb. ; salmon, 10c. per lb. ; halibut, 4c. per lb. ; herring, 1½c. per lb. ; mackerel, 5c. per lb. ; lobsters, 2c. each ; eels, \$2.50 per barrel ; squid, 30c. per 100 ; hake, ½c. per lb.
James Coady.....	Mackerel, No. 1, \$14 per barrel ; mackerel, No. 2, \$12 ; mackerel, No. 3, \$9 per barrel ; spring herring, \$3, and summer fish, \$5 per barrel ; crayfish, 2c. per lb.
David Ross.....	Salmon, 8c. per lb. ; cod, fresh, \$1.10 ; when dried, \$4.75 per quintal ; mackerel, \$12 per barrel ; lobsters, 60c. per 100, fresh. For exportation when delivered :—Cod, \$6 ; mackerel, \$16 per barrel ; lobsters, about \$7 per case.
D. F. McLean.....	At fishing grounds, salmon \$12 per barrel ; mackerel, \$10 per barrel ; herring, \$4 per barrel ; alewives, \$4 per barrel ; cod, \$3 per cwt. ; haddock, \$2 per cwt. ; hake, \$2 per cwt. ; halibut, 5c. per lb. ; trout, 10c. per lb. ; squid, \$3 per barrel ; smelts, 5c. per lb. ; eels, \$6 per barrel ; lobsters, \$1 per cwt. For exportation :—Salmon, \$14 per barrel ; mackerel, \$12 ; herring and alewives, \$5 per barrel ; cod, \$4.50 per cwt. ; haddock and hake, \$3 per cwt. ; eels, \$7 per barrel ; lobsters, 15c. per lb. cans.
Lewis McKeen.....	Salmon \$12, mackerel \$10, alewives \$4 and herring \$3.50 per barrel ; cod \$5, haddock and hake, \$2 per cwt. When prepared for exportation :—Salmon \$15, mackerel \$12, alewives \$5 and herring \$4.50 per barrel ; cod \$4.50, haddock and hake, \$3 per cwt.
R. E. Burke.....	Fresh cod, 1½c. per lb. ; mackerel, 6c. per lb. ; salmon, 6½c. per lb. ; herring, 1¾c. ; haddock, ¾c. per lb. ; when dried—cod, \$4 per quintal ; mackerel, \$13.60 per barrel ; salmon, \$14.60 per barrel ; herring, \$5 ; haddock, \$2.85 per cwt. When exported add \$1 per barrel on above for expenses.

QUESTION NO. 4—NOVA SCOTIA—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

- W. Bingham..... Spring herring, \$1 to \$1.50 per barrel sold as bait. Summer herring for exportation, \$4 per barrel; delivered in market, \$5; salmon, \$15; in market, \$16 per barrel; cod, \$4; in market, \$4.50 to \$5 per quintal; haddock, \$3; in market, \$3.50 per quintal; mackerel, \$13; in market, \$14 per barrel; alewives, \$4; in market, \$4.50 per barrel; squid for bait varies from 20c. per 100 to \$4 per barrel.
- R. G. Zwicker..... Cod from \$2.50 to \$4 per quintal; mackerel, \$6.10 to \$14 per barrel; herring, \$3 to \$4.50 per barrel; salmon, \$8 to \$16 per barrel; when delivered in market—cod, \$3 to \$5.25 per quintal; mackerel, \$7 to \$23 per barrel; herring, from \$3.50 to \$5 per barrel; salmon, \$10 to \$24 per barrel, owing to the price of the market.
- J. W. Burke & Co..... Codfish when caught, \$3.50 to \$4 per quintal of 300 lbs. green, equal to 112 lbs. dry; herring, \$4 to \$4.25 per 200 lbs.; large mackerel, quality No. 3, \$6; No. 3, large, \$7; No. 2, \$8 to \$9; No. 2, large, \$9 to \$11; No. 1, \$12 to \$15; extra No. 1, \$18 to \$21.
- Wm. Burke..... Codfish, \$4 per quintal; haddock, \$3 per cwt; mackerel, \$10 per barrel; salmon, \$15 per barrel at the fishing grounds or in Halifax market.
- F. W. Bissett..... Average prices on grounds:—Cod, \$4 per quintal; mackerel, \$7 per barrel; herring, \$4 per barrel; alewives, \$3 per barrel; haddock, \$2.50 per quintal; when exported, 50c. per quintal or barrel extra.
- D. Grucery & Son..... Prices vary. Codfish about \$4 per quintal; haddock, \$3 per quintal; mackerel varies, according to quality, from \$6 to \$15; herring, \$4; alewives, \$3.50; pickled fish when prepared for market are worth \$1 more per barrel, according to the market.
- Alfred LeNoir..... Salmon, 10c. per lb.; spring mackerel \$7, fall mackerel \$13, herring \$4, alewives \$3, dry cod \$4.25, and haddock \$3.25 per barrel; smelts, 2c. per lb.; hake, 3c. per lb.; lobsters, \$2 per 100; about 75c. extra when packed for the foreign market.
- Allan McQuarrie..... At the fishing grounds—Salmon, 10c. per lb.; mackerel, \$10 per barrel; alewives, \$4 per barrel; herring, \$3.50 to \$5 per barrel; cod, hake, haddock and pollack, from \$2.50 to \$4.50 per cwt.
- William Cameron..... Herring, \$1.25 per 100 fish, fresh; \$4 per barrel at fishing grounds; \$4.50 delivered in Halifax; \$5.50 in Montreal; \$6 in Boston; mackerel, 5c. to 10c. each, fresh; \$8 to \$18 per barrel, salt, at fishing grounds; \$11 to \$21 per barrel, Boston; haddock,  $\frac{3}{4}$ c. per lb., fresh; \$3 per cwt., dry; \$3.50, Halifax; \$3.75, Boston; alewives, 1c. each, fresh; \$3 per barrel, salt; \$3.50 at Halifax; salmon, 10c. per lb., fresh; squid, \$5 per barrel, fresh, for bait.

QUESTION No. 4—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

- G. Rowlings..... Cod, \$4.50 per quintal; herring, \$4 per barrel; mackerel, from \$6 to \$12 per barrel; haddock, \$3 per quintal; halibut, from 4c. to 5c. per lb.; hake, \$4 per quintal; lobster, \$1.50 per 100; same price at Halifax when they are all exported.
- W. M. Solomon..... Dry cod, about \$4 per quintal; haddock, \$3; hake, \$2.50; mackerel, \$6; herring, \$3.50, quality good, 5 per cent to be added when ready for exportation, and about 25 per cent at place of delivery.
- D. Evans..... Mackerel, fresh, No. 3, \$5 per barrel; small mackerel, \$3 per barrel; fresh herring, \$1 per barrel; squid, \$3 per barrel; fresh salmon, 10c. to 75c. per lb.; lobsters, 2½c. each; scallops, 50c. per doz.; for exportation, hake and cod, \$4.25 per quintal; haddock and herring, \$2.50 per barrel; mackerel, No. 3, \$7 per barrel; small mackerel, \$5 per barrel; and alewives, \$4 per barrel.
- Thomas Day..... Cod, \$4 per quintal; herring, \$4 per barrel; mackerel, \$5 to \$10 per barrel; salmon, 10c. to 50c. per lb.; lobsters, \$2 to \$6 per 100, as to size; foreign price not known.
- W. J. McGill..... Prices near fishing grounds—Cod, \$1.50 per cwt.; herring, \$1.50 per barrel; mackerel, \$4 per barrel. When prepared for market—Cod, \$4 per cwt.; herring, \$3 per barrel; mackerel, \$6 per barrel.
- S. O. Parker..... Cod, \$4.70; haddock, \$3.15; pollock and hake, \$2.40 per cwt.; mackerel, \$5 to \$10 per barrel; herring, \$3 to \$3.50 per barrel; alewives, \$4 to \$4.50; live lobsters, \$5 per 100; small lobsters, \$1.50 per 100.
- J. A. Hatfield..... Fresh fish—Cod, 1c. to 1½c. per lb.; haddock, 75c. to \$1 per cwt.; herring, \$2 per barrel; mackerel, \$5 per barrel. When prepared for exportation—Cod, \$4 per quintal; haddock, \$2.25 per quintal; mackerel, \$7 per barrel.
- Parker, Eakins & Co..... Fresh cod, \$4.75; haddock, \$3.25; hake, \$2.25; pollock, \$2.50 per quintal; herring, \$3 per barrel; add 75c. per quintal and \$1.25 per barrel to the West Indies, and 40c. per quintal and 50c. per barrel to the United States.
- J. R. Kinney..... Dried cod, \$4 to \$4.50 per quintal; pickled mackerel, \$6 to \$9 per barrel; fresh mackerel, 3c. to 9c. each; live lobsters, 3c. to 10c. each.
- J. W. Cossaboom..... Fresh halibut, \$4 per cwt.; salt cod, \$3 per cwt.; hake, \$1 per cwt.; haddock, \$1.25 per cwt.; lobsters, \$5 per 100 count; mackerel, \$4 per barrel; herring, \$2.50 per barrel; smoked herring, 10c. per box.
- W. M. Bailey..... Prices vary; salmon from 15c. per lb. at times up to \$1 per lb.; cod from \$2.50 to \$4.50 per cwt.
- J. S. Miller..... Cod, \$4 per quintal; shad, \$10 per barrel; herring, \$3 to \$4 per barrel; salmon, 10c. per lb.; at Boston it reaches from 25c. to 50c. per lb.
- S. P. Burnham..... Shad, \$10 to \$12 per barrel.



QUESTION No. 4—*Continued.*

## NEW BRUNSWICK.

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

Henry Murry.....	Cod, \$3 per cwt.; hake, \$2, and herring, \$1.50 per barrel; lobsters fluctuate.
Charles Cormier .....	Fresh herring, \$1 per barrel; when prepared for exportation, \$2; fresh mackerel, \$6; export, \$8; codfish, fresh, \$1 per cwt.; dried codfish, \$4; eels and bass, 4c. per lb.; smelts, 2c. per lb.; canned lobsters, 12c. per lb.
Henry O'Leary.....	Fresh mackerel, \$5 per 100; prepared for export, \$12 to \$15 per 100.
Robert Goodwin.....	Fresh herring, \$1.25 per 200 lbs.; cured as bait, \$2 per 200 lbs.; pickled for export, \$4 per 200 lbs.; mackerel, \$10 per barrel; shad, \$12 per barrel; codfish, \$5 per cwt.; smoked herring, 50c. to 60c. per 100 fish.
Thomas Barry.....	Fresh sardine herring, 60c. per barrel; dried cod, \$5 per barrel; pollack, \$2.50 per quintal; haddock, \$2 per quintal; smoked herring, 60c. per 100.
B. Brown.....	Sardines, \$5 per hogshead; smoked herring, 8c. per box; herring, \$3 per barrel; mackerel, \$10 per barrel; codfish, \$4 per quintal; pollack, \$2 per quintal; hake, \$2 per quintal; haddock, \$2 per quintal; hake sounds, 12c. per lb.; lobsters, 2-lb. tins, 23c.
D. F. Campbell.....	Fresh herring, \$4 to \$5 per barrel; net herring, 50c. per 100; lobsters, \$30 to \$50 per ton.
Joseph O'Brien.....	Alewives, 50c. per 100.
S. Stewart.....	Shad, \$10 per barrel.
Jas. Hickson.....	Salmon, 10c. per lb. on fishing grounds, 20c. to 35c. when exported; mackerel, \$10 per barrel on grounds; \$20 to \$30 when exported; herring, \$1.50 per barrel on grounds; \$5 to \$7 when exported; cod, \$1.50 on fishing grounds; \$4 to \$8 when exported; smelts, 5c. per lb. when caught; 15c. to 30c. per lb. when exported; lobsters, 4c. per lb. shelled; 12c. to 18c. when exported.
J. G. Williston.....	Salmon, \$1 each; on the market, \$1.50 to \$2; lobsters, 3c. per lb.; for export, 8c. to 12c. per lb.

## PRINCE EDWARD ISLAND.

Daniel Davies.....	Direct codfish worth about \$4 per quintal, hake and haddock from \$2 to \$2.50. No fresh fish are exported.
R. Robbler.....	Mackerel averaged \$14 per brl. here; lobsters, \$7 per case of 4 doz. 1-lb. tins; codfish, \$4 per cwt.
J. H. Myrick .....	Fresh cod from \$1 to \$1.50 per 100 lbs. Large cod, hake and haddock, 75 cents per 100 lbs. when prepared, cod from \$3 to \$4; hake and haddock, \$2 to \$2.50. Mackerel fluctuates with the United States markets.

QUESTION No. 4—PRINCE EDWARD ISLAND—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

A. F. Larkin..... Herring, \$3 per brl. ; cod, \$2.50 per quintal ; hake, \$2.25 per quintal ; lobsters, 70 cents per 100 ; smelts, 4 cents per lb. ; eels, 4 cents per lb. ; mackerel, fresh, from \$1 to \$7 per 100, and from \$6 to \$18 per brl., at or near fishing grounds. Prices obtained for above entirely depend on the markets.

QUEBEC.

J. A. Verge..... Salmon in ice from stations, 10 to 13 cents per lb. ; trout, 10 cents. When prepared and delivered in the markets, about double these prices.

J. L. Smith..... Codfish, \$2 per 238 lbs. When shipped to foreign countries it is worth from \$4 to \$5 per quintal.

Geo. Romeril..... Cod are sold at the grounds for \$2 or \$2.50 for 238 lbs., and when dried and prepared for export from \$4 to \$5 per quintal, and when delivered in the markets from \$5 to \$6 per quintal.

G. T. Annett..... Cod, \$4 per cwt. ; halibut, \$12 per brl. ; herring, \$3 per brl. ; mackerel, \$10 per brl. ; haddock, \$3 per cwt., all of first quality near the fishing grounds.

A. E. Collas..... Cod at the fishing grounds is rated at from \$1.80 to \$2.50 per draft of 238 lbs., fresh ; when prepared and dried, from \$4.25 to \$5.40 per quintal of 112 lbs., and when delivered at market from \$5.25 to \$6.50 per quintal.

Alexander & Co..... Prices vary according to demand of foreign markets. Last year the best quality of codfish was \$4.50 per quintal.

Jos. Lemieux..... Cured cod sold for \$4 to \$4.50 per quintal according to quality.

J. I. Letourneau..... Cod sells here at \$3.50 per quintal. Market prices not known.

Johnny Joncas..... Cod sells for \$4 to \$5 per brl. ; spring herring, \$3 to \$4, and fall herring at \$5 to \$6.

Nap. Levesque..... At the fishing grounds. Prepared for market.  
Salmon, 10 cents per lb. 10 cents per lb.  
Herring, \$1 per brl. ... \$3 per brl.  
Sardines, \$3 " .... \$4 per brl.  
Shad, 5 cents per lb. ...  
Sturgeon, 6 cents per lb.

U. Bhreur..... Eels, \$9 per brl. ; sardines, \$4 ; capelin, 25c. per brl. ; salmon, 10 cents per lb.

N. A. Comeau..... Prices of fish vary according to supply. Cod No. 1, salted, \$3 per brl. ; cod No. 2, \$2.50 per brl. ; herring No. 1, \$4 per brl., and No. 2 about \$3 ; halibut, from \$4 to \$10 per brl. ; mackerel, from \$5 to \$15 per brl. Salmon, fresh, 6 cents ; and trout, 4 cents per lb. When delivered at markets an advance of 30 or 40 per cent is made on prices.

Theo. Migneault..... Salmon sold for 7 cents per lb. ; trout, 5 cents ; fresh cod, \$1.20 per cwt. ; dried cod, \$4.50 per quintal, and herring No. 1, \$5 ; halibut, 3 cents per lb.

QUESTION NO. 4—QUEBEC—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

G. Mathurin . . . . . Salmon sold for \$12 per brl. ; dried cod, \$4 per quintal, and green cod for \$3.50 per brl.  
 John Legouvie . . . . . Cod, \$4.50 per quintal; salmon, \$15 per brl. ; herring, \$5 in market.

*Gulf Division :*

Wm. Wakeham . . . . .	At Fishing Grounds.	Prepared for Exportation.	At Market.
	Cod, \$1.60 to \$2 p. draft.	\$3 to \$5 . . . . .	\$5 to \$7.
	Salmon, 5c. to 25c. p. lb.	In ice, 10 to 30c. . . . .	10c. to 60c.
	Trout, 5c. . . . .	" 10c. . . . .	
	Mackerel, \$5 to \$20 p. brl.	\$5 to \$20 per brl. . . . .	\$8 to \$28.
	Herring, \$3 to \$5 p. brl. . . . .		\$3.50 to \$5.50.
	Smelts, 2c. to 5c. p. lb. . . . .		5c. to 25c. per lb.
	Lobsters, 50c. to \$1 p. 100	12c. to 15c. per lb. . . . .	\$6 to \$9 per case.
	Seal skins, \$1.25 apiece. . . . .		
	Oil, 30c. to 40c. p. gall. . . . .		40c. to 60c. per gall.

QUESTION NO. 5.—*Are some of those fisheries in a backward state, and if so, what obstacles impede their development, and what means are required to foster them ?*

NOVA SCOTIA.

R. J. Pollock . . . . . Enterprising men keep up with the times.  
 J. D. McQueen . . . . . Herring and lobster fishing are prospering, cod is becoming scarce ; salmon fishing is waning, as fall fishing was tolerated too long.  
 John McDonald . . . . . Lobster fishing is fairly good ; salmon fishing is declining. The greatest obstacle the fishermen meet with is the scarcity of bait ; do not know how it can be overcome.  
 C. Robin Collas & Co . . . . . The fisheries are backward owing to the scarcity of bait, which, for the last ten years, is brought from the westward of Halifax, consisting chiefly of clams, being very expensive to the fishermen. Two breakwaters are greatly needed, or Big Pond Lake should be opened for the protection of boats.  
 James Coady . . . . . I believe the fishermen are more prosperous to-day than they ever were, as the fish are fetching good prices and transit so easy.  
 David Ross . . . . . No ; they are in a fair state.  
 D. F. McLean . . . . . Mackerel fishing is backward ; fishing with purse-seines hitherto impeded their development. What means are now required to foster them is to see the law in this behalf carried out.  
 Lewis McKeen . . . . . Yes ; mackerel and herring. Using purse-seines destroy them in large numbers and quantities. The necessary protection, as afforded by the present law in that connection.  
 R. E. Burke . . . . . A falling off in catch of salmon, spring mackerel and herring ; these fish twine the shore closely. The prevalent opinion is, the scarcity of these fish may be attributed to the immense quantity of lobster pots fished on the grounds which the above fish frequent.

QUESTION No. 5—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

- W. Bingham ..... All the fisheries along this coast are doing fairly well with the exception of salmon, which shows considerable decrease. Would recommend that young fry be placed in North River, St. Ann's, as the waters are well adapted for the culture of those fish. The Barasois River and Clyburn Brook are also appropriate streams for the reception and growth of young salmon.
- R. G. Zwicker ..... Mackerel has improved this last three years, but cod is getting more scarce each year, partly for want of bait at the right season, and bank fishing affects the inshore fishing, keeping the fish off shore in the spring. Herring and salmon are also getting scarce each year.
- J. W. Burke & Co. .... All are fairly prosperous.
- William Burke ..... Fishing is in a fair state ; cannot make any suggestions for improvement of fisheries.
- F. W. Bissett. .... The scarcity of fish seems to be steadily increasing. The fishermen are very diligent and energetic in their calling.
- D. Grucery & Son. .... Mackerel and herring fishing are in a backward state, owing to purse-seining, which prevent fish coming into bays. The only means to foster them is to abandon the purse-seine.
- Alfred LeNoir ..... The fish along the shores are becoming scarcer each year. It is thought raising so many lobster traps and the decomposed fish disturb the bottom of the grounds.
- Allan McQuarrie ..... Herring fishing is not flourishing, as the fish are spoilt in curing, the markets are diminishing, barrels are inferior, and size not adapted for home market, inferior salt, hauling in nets in the heat of the day, leaving the fish exposed until they get soft and flavour gone, which cannot be restored. Regulations for packages and net fishing at night would help to foster this fishery.
- G. Rowlings ..... The herring and mackerel fishery are not so plentiful as they were eight or ten years ago, but cannot give any suggestion for improvement of same.
- W. M. Solomon ..... Codfish is in a backward state owing to the scarcity of bait to catch them. The means to be employed to foster the industry would be not to extend the *modus vivendi*.
- D. Evans ..... None are in a backward state ; the obstructions are removed by the energy of the fishermen.
- Thomas Day ..... Salmon fishing shows a great falling off, due to the advances of civilization, also the ladders in poor condition on the dams across the river.
- W. J. McGill ..... The cod fishing of late years has failed, owing, I suppose, to the great number of American fishermen trawling on this coast.
- S. O. Parker ..... Very well developed.



QUESTION NO. 5—NOVA SCOTIA—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

- J. A. Hatfield..... Almost every department of the sea fishery is effectually worked. Last season the cod fishing was impeded by the unreasonable action of the Newfoundland Legislature with regard to bait. The natural supply of bait fish along our coast from Grand Manan to the Magdalen Islands is now more than sufficient for our own fishermen. In many instances the shore cod-fishing fleet are unable to obtain enough bait for them to continue their catch. To foster this industry our Government must rigidly preserve all our fresh fish for provincial fishermen.
- Parker, Eakins & Co..... They are as good as ever they were, and there is no way of fostering or developing them.
- J. R. Kinney..... None of the branches are in a backward state.
- James W. Cossaboom..... I do not know of any being in a backward state.
- W. M. Bailey..... The herring fishery is not prosecuted in the manner it might be, the fishermen in most cases not having proper nets, boats, landing stages or packing houses; they have not the means of making it successful, each one fishing, curing and marketing his own fish; the same may be said with the deep-sea fisheries of this county.
- J. S. Miller..... Shad and herring have been poor of late years, but shad shows some signs of improving this last year.
- S. P. Burnham..... Shad fishing has been on the decline this past five or six years.

## NEW BRUNSWICK.

- Henry Murry..... All are backward for want of capital.
- Henry O'Leary..... They are backward for want of suitable boats for the different fisheries.
- R. Goodwin..... Unable to sell to a foreign market, also unable to obtain proper salt for curing; but think they need instruction, as they are very slow to learn.
- T. Barry..... Fishermen say there is no market for their fish when caught.
- F. D. Campbell..... Lobster fishing is decreasing on account of taking small ones; nothing less than  $10\frac{1}{2}$  inch lobster should be taken, and should strongly advise making a close season for 2 or 3 years in this county, allowing them to accumulate.
- F. Todd..... On the whole they are generally prosperous. The great drawback is the duty on all fish sent to the United States, giving the fishermen no profit.
- Joseph O'Brien..... Herring fishery very backward, through wholesale destruction of young herring by the weirs; are of no value except for manure. Weirs should be arranged for the young to escape.
- E. V. Rourke..... The people engaged are very poor, and devote some of their time to farming instead of following up the fishing industries.

QUESTION NO. 5—NEW BRUNSWICK—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

- S. Stewart..... Shad fishing very backward on account of sawdust and refuse settling on the feeding grounds. Mill-owners should be prohibited from throwing their refuse in the river. Again, shad should not be caught till after 20th June, when spawning season is over.
- Jas. Hickson..... All prosperous except lobsters; the season for fishing them should be shortened.
- J. G. Williston..... Salmon not so plentiful. It is asserted, and seems correct, the hatcheries are breeding the wrong fish; instead of the fall run the parent fish should be captured in the May and June runs. Anglers also are killing the fish that should be protected for spawning.

PRINCE EDWARD ISLAND.

- Daniel Davies..... The deep-sea fisheries are in a flourishing state, but boats are scarce.
- R. Robbler..... Steadily increasing. Miminegash stands in great need of a breakwater; if a few thousand dollars were expended, boats drawing 7 ft. of water could come in the run, which is one mile long.
- J. H. Myrick..... Yes, the majority of fishermen are land-owners, and divide their time between fishing and farming. Men are wanted here who would devote the whole of their time to this industry for favourable results.
- A. F. Larkin..... The men follow the lobster and mackerel fishing, and do not keep boats or gear for cod, hake and had-dock. Lobster fishing might be fostered by furnishing an apparatus for saving the ova. Development of mackerel fishery depends on improved trade relations with the United States.

QUEBEC.

- J. A. Verge..... There is no marked decrease in the fisheries of his district; the present regulations properly enforced are sufficient to maintain them.
- J. L. Smith..... The yield of the fisheries has averaged about the same for the last five years, salmon showing a slight decrease.
- Geo. Romeril..... Fisheries well developed, but scarcity of bait at times constitute the greatest drawback.
- G. T. Annett..... Yes, mackerel fishing is in a backward state, owing to the use of purse-seines by American fishermen. He believes also that trawl fishing is injurious to cod fishery.
- A. E. Collas..... Fisheries well developed; greatest drawback is the occasional scarcity of bait.
- Alexander & Co..... Nil.
- Jos. Lemieux..... Fishing has declined on the western coast of Gaspé owing to strong currents, scarcity of bait, and also to the numerous white whales (marsouins) frequenting our coast.

QUESTION No. 5—QUEBEC—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

Jos. I. Letourneau .....	Not to his knowledge.
Johnny Joncas.....	Knows of none.
Nap. Levesque.....	Generally the fisheries are in good state.
U. Bhreur .....	All in good state.
N. A. Comeau.....	The halibut is somewhat neglected for want of means to ship it to markets in a fresh state; few fishermen understand setting trawls for them; they mostly devote their time to cod fishing.
T. Mignault.....	No fisheries are neglected to his knowledge.
G. Mathurin .....	He thinks cod fishery is neglected.
John Legouvie.....	Nil.
	<i>Gulf Division :</i>
Wm. Wakeham.....	Yes. Lobster fishery, from over-fishing; now improving. Cod fishery, from scarcity of bait, destruction of bait fish for manure; herring, from bad methods of curing and barrelling; salmon, from over-fishing, destruction of spawn and fry by trout. To increase protection, keep trout out of salmon rivers, shorten fishing season, and gradually thin out nets. No change needed on the north coast.

QUESTION No. 6.—*What kind of boats and vessels, with their number and tonnage, clear from ports in your county to engage in the fisheries; and what kinds and number of vessels are required to carry the fish caught by them to market?*

## NOVA SCOTIA.

R. J. Pollock .....	Forty open row-boats. Shipped in schooners from Maitland, Parrsboro' and Tatamagouche.
John D. McQueen .....	Small boats are generally used. The greater part are sent to market and sold fresh.
John McDonald .....	Small boats are built and used by those engaged in the fishery, numbering about 180, during the fishing season, of different shapes and sizes.
C. Robin, Collas & Co.....	Fishing boats average from 2 to 4 tons, and model improvement is very much needed. About 40 schooners fish from here. About a dozen schooners and square-rigged craft are engaged running the fish to markets in the West Indies and South American ports.
James Coady.....	The shore fishermen have only small boats (not registered), which are staunch and suitable for their work. There are only five vessels engaged in the fishery, having an aggregate tonnage of 252 tons. The fish caught by the above are transhipped by steamers to the States, and sailing vessels to Halifax, N.S.
David Ross .....	Barges and small schooners from 20 to 40 tons, 3 brigs and 2 schooners.
D. F. McLean.....	About 850 ordinary keel boats, 15 schooner-rigged vessels (700 tons), brigantines and schooners about 20 in number.
Lewis McKeen .....	About 800 keel boats, 16 schooners (tonnage about 700), also 20 or 25 brigantines and schooners.

QUESTION NO. 6—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

- |                          |   |
|--------------------------|---|
| R. E. Burke .....        | Boats are from 13 to 22 ft. keel. About 500 fishing boats are regularly used in this county, with an additional 100 during July. There are 3 regular coasting schooners, of about 50 tons each, which carry our catch to Halifax.                             |
| W. Bingham .....         | Only one vessel clearing from this port engaged in the fisheries, the "Mary Moulton," 26 tons, and no vessel is engaged to carry the fish to market.  |
| R. G. Zwicker .....      | Two or three schooners, from 40 to 60 tons, engaged in the fisheries in this county. Inshore fishing is carried on by boats of small size. Seven or eight schooners, from 50 to 70 tons, are engaged in marketing the fish.                                   |
| J. W. Burke & Sons ..... | Boats are various sizes, from 14 to 24 ft. keel. Only one vessel of 14 tons engaged in the fishery; about 650 engaged in the whole county. About 10 schooners, from 50 to 70 tons measurement, are used carrying the fish to market.                          |
| Wm. Burke .....          | Schooners from 40 to 50 tons, for carrying fish to Halifax, where they are disposed of.   |
| F. W. Bissett .....      | About 50 vessels and 500 boats engaged in the fishery. The fishing schooners carry their own fish to market, and about 20 others are engaged to carry the remainder of the catch.   |
| D. Grucery & Son .....   | The boats engaged are suitable for the fishery, numbering 30 to 40, and from 1 to 6 tons in size. Nineteen vessels clear for the deep-sea fishery, from 25 to 60 tons. The same vessels are engaged to carry the fish to market (Halifax), after being cured. |
| Alfred LeNoir .....      | The only boats employed are the inshore boats, which do not clear, 53 vessels (2,049 tonnage, and crew of 502), 3 brigantines and 20 schooners carrying to market.  |
| Allan McQuarrie .....    | About 347 from 15 to 22 ft. keel; 6 schooners 10 to 40 tons, total tonnage 169. Fish taken to market by the general traders to Halifax and P.E.I.   |
| William Cameron .....    | Number of boats 1,215, vessels 16, tonnage of vessels 487. Where the fishermen have good harbours they use keel boats; other localities centre-board boats, as they can be hauled upon the shore without falling over.  |
| G. Rowlings .....        | Small boats are used; the largest would not measure more than 2 tons. About 34 vessels clear from ports between Halifax and Ecum Secum, tonnage about 1,140. The fishing schooners average from 15 to 60 tons; these vessels carry the fish to market.        |
| W. M. Solomon .....      | Schooners 180, tonnage 14,000; dories 900, tonnage 900; market steamers 2, tonnage 178; brigs for carrying, 9, tonnage 1,350; schooners for carrying, 12, tonnage 1,800; boats called whalers for shore fisheries about 1,500, tonnage 3,000.                 |



QUESTION NO. 6—NOVA SCOTIA—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

Thomas Day .....	Small open boats. Whaleboats and schooners are used for the fisheries; the latter vary from 10 to 100 tons. The export of fish is conveyed in schooners and square-rigged craft.
W. S. McGill .....	Schooners, centre-board boats and dories; 268 boats and dories; 31 schooners, tonnage 1,898. Twenty schooners and brigantines are employed in carrying fish to market.
S. O. Parker.....	Mackerel, herring, and lobster fishermen use open boats from 13 to 18 ft. keel; 8 sailing fishing vessels clear from this port with a tonnage of 566 tons. These vessels convey the fish to the home markets. Two brigantines are engaged in carrying to the West Indies.
J. A. Hatfield.....	There are 54 vessels, with a total tonnage of 2,210 tons, and 169 boats engaged in the fishery; the fish are carried to market by 3 steamers, 3 brigs and 4 schooners.
Parker, Eakins & Co.....	Schooners from 30 to 100 tons catch the fish, and schooners and brigantines of from 90 to 150 tons carry them to the West Indies. They are shipped by steam to the United States.
J. R. Kinney.....	The fishing schooners vary from 65 to 110 tons; the fish is taken to the West Indies by brigantines and schooners.
J. W. Cossaboom.....	There are about 5 vessels in Digby county of 30 tons each that carry fish to market; large quantities are also shipped by steamer and railway.
W. M. Bailey.....	The size of the boats vary from 13 to 22 ft. keel upwards to 10 tons; about 223 are actually in use, but inferior in class. We have 15 fishing vessels with a tonnage of 502 tons; steamers run to the United States, while brigantines and schooners are used for West Indies and South America.
James S. Miller.....	About 75 boats and 7 vessels engaged in fishing, varying from 15 to 20 tons each; they take their own catch to market. There are also steamboats and railways by which the fish are sent to market.
S. P. Burnham.....	Small open boats from 5 to 7 tons. No vessels employed.

## NEW BRUNSWICK.

B. Brown.....	Vessels from 10 to 40 tons engaged in fishing; 20 cleared from this port; total tonnage, 339; 140 boats, 15 to 20 ft. keel; half are centre-keel and sloop-rigged; market their own fish.
C. Cormier.....	Only small boats are used here, which put to sea in the morning and return at night.
Henry O'Leary.....	Small boats from 18 to 20 ft. keel and small schooners from 10 to 15 tons, numbering 400; all fish sent to market by rail.
Robert Goodwin.....	Sail boats from 18 to 25 ft. keel, good models; about 660, mostly engaged in the lobster fishing.

QUESTION No. 6—NEW BRUNSWICK—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

Henry Murry .....	Small schooners, about 14 in all; also several boats from 14 to 16 ft. keel used at home.
Thomas Barry.....	Some small schooners, sloops and net boats; no large ones used.
D. F. Campbell.....	Fish in my district are taken to the canneries by small steam and sailing vessels owned in United States.
Joseph O'Brien.....	Excellent boats are engaged in fishing; numbers have fallen off in consequence of the herring failure.
E. V. Rourke .....	Open boats are used for inshore fishing; no large ones engaged here.
S. Stewart.....	Three small boats; fish consumed at home.
Jas. Hickson.....	Only small boats used here; fish sent to market by rail.
J. G. Williston.....	Eight schooners, total tonnage, 300 tons; also a number of boats about 20 to 25 ft. keel for lobster, mackerel, &c.; log canoes are also used; two or three small schooners and ss. "Miramichi," 30 tons, for the fishery.

PRINCE EDWARD ISLAND.

A. F. Larkin.....	Twenty-five schooners from 15 to 70 tons each, and about 2,000 boats. We have a good transportation service for summer. As to winter fishing trade the tunnel alone will fully develop the business.
J. H. Myrick.....	Sixteen to 32 ft. keel, chiefly clinker-built, and about 20 vessels from 20 to 65 tons each. The catch is carried to market chiefly by rail.
R. Robbler.....	About 600 vessels from 15 to 30 ft. keel. All kinds of fish are exported either by schooners or steamers. Freight very cheap, about 55c. per barrel to Boston.
Daniel Davies.....	Open and decked boats are used from 20 to 30 ft. keel; a few schooners of larger size are also used.

QUEBEC.

J. A. Verge.....	No vessels or boats from this district are engaged in sea fishing.
J. L. Smith.....	The fishing boats of this district are small going out in the morning and returning in the evening. Vessels used to carry this fish to markets are from 100 to 180 tons each.
Geo. Romeril.....	Vessels not employed fishing, but only to convey the fish to market. Open or decked boats from 5 to 10 tons are used in fishing.
G. F. Annett.....	The boats used on this coast are the common fishing boat, the flat-bottom boat and the fore-and-aft schooners. There are about 3,000 of these, and about 20 vessels.
A. E. Collas.....	Only boats, open or decked, from 5 to 10 tons are used for fishing. Vessels from 100 to 180 tons are used to carry the fish to the markets.

QUESTION NO. 6—QUEBEC—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

Alexander & Co .....	Vessels are not engaged in the fishing operations, merely in the export trade. From 100 to 170 tons are the best suited for this carrying of fish. About 100 open boats are used in the cove and vicinity.
Jos. Lemieux.....	The boats used are either flats of 12 or 15 feet long, or the regular fishing boats of from 16 to 23 feet long. Six or seven schooners are engaged in the shipping of cod to foreign markets.
Jos. I. Letourneau .....	No schooners used, but cod fishing carried on with 133 regular fishing boats.
Johnny Joncas.....	None.
Nap. Levesque.....	Three schooners are used to bring fish to markets, and four are fitted out for cod fishing in other districts.
U. Bhreur .....	None.
N. A. Comeau.....	Seven schooners of an average tonnage of 15 tons are engaged in the cod and herring fisheries of this division, besides 75 open fishing boats used by the residents.
T. Mignault.....	Four schooners and 61 boats were engaged in the fishing industry of this district, besides four other vessels and one steamer which were carrying the fish to market.
G. Mathurin.....	Only two boats were cod fishing in his district last summer, and two schooners trading with Indians carried the fish to market.
John Legouvie.....	The boats and vessels are in as good order as required.
Wm. Wakeham.....	<i>Gulf Division :</i> Over 5,000 boats and 50 schooners (30 tons each). Fish goes to market in vessels from 100 to 250 tons. About 30 of them are thus engaged.

QUESTION NO. 7.—*How many men belonging to your county are engaged in the fisheries, and are they expert, industrious and handy?—State also, what branches of the fisheries they are engaged in, and what kind of fishing they understand best?*

## NOVA SCOTIA.

R. J. Pollock.....	About 100 men master of their profession, as all Nova Scotians are. Principally bay fishing; drift nets and weirs.
J. D. McQueen.....	They understand salmon and lobster fishing best.
John McDonald.....	Upwards of 250 men engaged in the fishery. They are handy, expert and industrious, but do not wholly depend on fishing for a livelihood, being sons of farmers.
C. Robin, Collas & Co.....	About 938 men in this locality who are expert, handy and generally industrious. They are mostly engaged in the salmon and cod fishing, which they understand the best, although they are engaged also in the mackerel and herring fishery.

QUESTION No. 7—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

James Coady .....	About 200 men and boys engaged in the fisheries ; they are expert, industrious and handy ; they are principally engaged in codfishing, hand lining, net fishing and some seining ; they understand net fishing and hand lining best.
David Ross.....	About 1,000 men. Yes Codfish, mackerel, herring, salmon and lobster fishing.
D. F. McLean.....	About 2,500 men ; they are expert, industrious and handy, and are engaged in nearly all kinds of fishing ; they understand mackerel, herring, cod, haddock and lobster fishing best.
Lewis McKeen.....	Over 2,000 men. Yes. Mackerel, herring, cod and lobster fishing.
R. E. Burke.....	1,034 actual fishermen ; 200 more men are employed during July fishing for herring and squid ; they are handy, expert and industrious ; understand cod and mackerel fishing best.
W. Bingham.....	About 1,186 ; all are expert, handy and industrious ; are principally engaged in the herring, cod and mackerel fishery and understand these branches well. Salmon and lobsters are also caught very successfully during the season.
R. G. Zwicker.....	Between 600 and 700 men ; they understand the cod, mackerel and herring fishery best.
J. W. Burke & Co. ....	About 1,300 men ; they are handy and industrious as a rule ; the cod fishing in all its branches.
William Burke.....	About 300 men who are industrious and expert fishermen ; they understand line and net fishing best.
F. W. Bissett.....	About 1,500 to 2,000 men ; they are expert and industrious, and understand all branches of the business well.
D. Grucery & Son.....	About 300 men ; they are industrious and handy and understand the codfishing best.
Alfred LeNoir.....	1,175 men engaged in the fisheries ; they are industrious and handy and understand line and net fishing perfectly.
A. McQuarrie.....	About 430 men ; they are expert and handy, but many of them lacking in industry ; engaged in herring, mackerel, cod and lobsters ; net and lobster fishing are well understood but not vigorously pursued.
William Cameron.....	1,787 men. Yes. Line, gill-net, trap-net, bag-net and lobster fishing ; they understand all these branches very well.
G. Rowlings.....	The fishermen are expert and industrious ; number of men not known ; engaged in cod, lobster, herring and mackerel fishing, which they well understand.
W. M. Solomon.....	About 4,000 men are engaged ; a class of fishermen unrivalled, possessing a knowledge of all sea fishing.
D. Evans.....	do do do
Thomas Day.....	The fishermen in our county are handy and industrious, and have a general knowledge of fishing in all its branches.



QUESTION No. 7—NOVA SCOTIA—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

Wm. J. McGill.....	868 men. Yes. Deep-sea and inshore fisheries, they understand fishing in all its branches, except the curing of herring.
S. O. Parker.....	About 250 men; they are expert and industrious; engaged in lobster, cod, mackerel and herring fishing and understand all branches well.
J. A. Hatfield.....	1,500 men; they are industrious and expert; they are engaged in bank and coast fisheries, and understand both thoroughly.
Parker, Eakins & Co.....	We estimate that 2,000 men belonging to this county are engaged in the fisheries a part or the whole of the working season. About 500 men go to the States and ship in American vessels. All branches of the fisheries are engaged in, the men are industrious but not as particular in their methods of curing and packing as they might be.
J. R. Kinney.....	About 1,532 men are engaged in the deep-sea and inshore fisheries, and they understand their business well.
J. W. Cossaboom.....	About 1,000 men engaged in the different branches of fishing, they are industrious, handy, &c.; engaged in line, lobster, net, trap-net and weir-net fishing, all branches of which they thoroughly understand.
W. M. Bailey.....	About 600 men; they are generally handy and industrious; line and trawl fishing is understood best among these fishermen.
J. S. Miller.....	About 200 men are mostly engaged in fishing, the other fishermen are employed at farms part of the year. They understand cod, herring, shad and salmon fishing best.
S. P. Burnham.....	Only about 50 men are engaged in fishing from June till August.

## NEW BRUNSWICK.

Henry Murry.....	About 500 men; not constantly engaged in fishing, only at fishing season, otherwise they are farming, but understand all kinds of fishing fairly well.
C. Cormier.....	About 400 men; they are expert, industrious, and understand all branches of the fishery.
Henry O'Leary.....	1,000 men, at least; they are industrious in catching herring, lobster, mackerel and smelts.
R. Goodwin.....	750 men; engaged principally in the herring, mackerel and lobster fishery.
Thomas Barry.....	About 1,200 men; handy and industrious, and thoroughly understand the work they are engaged in.
B. Brown.....	222 men; engaged in all branches of fishing, and are expert and handy.
D. F. Campbell.....	The men are expert and handy in all branches of fishing.
Frank Todd.....	About 2,300 men and boys engaged; are expert, handy and industrious; largely engaged in line fishing; herring, mackerel and lobster fishing are the chief fisheries, and all are generally understood.

QUESTION No. 7—NEW BRUNSWICK—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

Joseph O'Brien.....	About 528 men ; are expert and handy, and chiefly engaged in fishing for salmon, shad, gaspereaux, codfish, hake, haddock, pollock and lobsters.
S. Stewart.....	Only 5 men engaged in the shad fishery, and are expert in their work.
J. Hickson.....	The fishermen are expert, and understand the fishing of salmon, mackerel, herring, cod, lobster and smelts.
J. G. Williston.....	Nearly 3,000 men ; are expert and handy in fishing for salmon, alewives, mackerel, herring, cod, hake, frost fish, smelts and lobsters ; understand all kinds of fishing very well.

PRINCE EDWARD ISLAND.

Daniel Davies.....	Around Murray Harbour and adjacent shores there are about 1,000 men off and on ; they are mostly expert and industrious.
R. Robbler.....	In Prince county about 10,000 persons, including lobster-factory hands, and are capable of doing all kinds of fishing.
J. H. Myrick.....	About 1,500 men, part of whom give a divided attention to this industry ; they are handy and expert mackerel fishermen and understand their work.
A. F. Larkin.....	About 2,000 men and upwards ; they are, as a rule, expert, handy and industrious. They understand the herring, mackerel, lobster, cod, hake, smelt, eel and oyster fishery best.

QUEBEC.

J. A. Verge.....	Nil.
J. L. Smith.....	About 3,000 men and boys ; they understand cod and herring fishing best.
Geo. Romeril.....	About 2,000 men and boys are employed in the fishing industry. The majority of them are expert and handy, but not over industrious. Cod fishing is the staple fish and best understood. Lobster canning is also carried on early in the season.
G. T. Annett.....	Nearly 5,000 fishermen are engaged in the business in this county. The majority are expert and handy, and they understand the cod fishery the best, although taking part in herring, mackerel, halibut, haddock and other fisheries as well.
A. E. Collas.....	Over 4,000 men and boys are engaged in this business ; they are expert and handy. Cod fishing is the staple industry and most paying, consequently the best understood by them.
Alexander & Co.....	Most of the men here are engaged in the fishing industry. They are experts, but not very industrious ; they understand boat fishing best.

QUESTION No. 7—QUEBEC—*Continued*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

Jos. Lemieux.....	About 1,000 men are engaged in the cod industry, about 200 hands curing and preparing it for exportation. There are ten salmon fishermen.												
Jos. I. Letourneau.....	250 men engaged in the cod and herring industry in his district.												
Johnny Joncas.....	About 200 of the inhabitants fish at certain periods of the year.												
Nap. Levesque.....	About 130 men from this county are occasionally engaged in the fishing industry. They are experts and industrious in prosecuting the kinds of fish already mentioned.												
U. Bhereur.....	About 100 inhabitants are occasionally engaged fishing.												
N. A. Comeau.....	About 150 men are employed fishing in this division. They are very industrious and handy ; they understand cod and salmon fishing the best.												
T. Mignault.....	134 men fished the waters of his division last year. They were mostly engaged in the cod fishery, which they understand best. They are industrious and handy, building all their boats and schooners themselves.												
G. Mathurin.....	Only 14 fishermen were engaged, mostly in the salmon fisheries, which they understand the best. They are neither expert nor industrious.												
John Legouvie.....	Nil.												
Wm. Wakeham.....	<table><tr><td></td><td>Sailors.</td><td>Fishermen.</td></tr><tr><td>In Saguenay.....</td><td>225</td><td>1,500</td></tr><tr><td>In Gaspé.....</td><td>110</td><td>3,000</td></tr><tr><td>In Bonaventure.....</td><td>28</td><td>1,000</td></tr></table>		Sailors.	Fishermen.	In Saguenay.....	225	1,500	In Gaspé.....	110	3,000	In Bonaventure.....	28	1,000
	Sailors.	Fishermen.											
In Saguenay.....	225	1,500											
In Gaspé.....	110	3,000											
In Bonaventure.....	28	1,000											

They are expert and handy, but the majority are not industrious, and they are all improvident. They understand cod fishery best.

QUESTION No. 8.—*Are the seines, nets and fishing gear in use of the best description, and are the boats and fishing schooners employed built upon good models? Would not the circulation of models of superior boats and vessels from port to port be a proper means to improve them?*

## NOVA SCOTIA.

R. J. Pollock.....	In most respects good; probably the circulation of models would be an advantage.
J. D. McQueen.....	The nets, traps and moorings are good, but the boats need improvement; yes.
John Macdonald.....	Their nets and gear are of the best description; their boats are not the best of models, as the fishermen build them themselves, and are satisfied with them, as they do not depend entirely on fishing for a living.
C. Robin, Collas & Co.....	Nets are of good quality; boats and schooners need much improvement; should think a circulation of models would be a great advantage.
James Coady.....	do do

QUESTION No. 8—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS' AND OTHERS.

ANSWERS.

David Ross.....	Seines and gear are of good description; the models of boats and schooners are fair; yes.
D. F. McLean.....	Yes; fair; the circulation of models would be a proper means for improvement.
Lewis McKeen.....	Some fair, others indifferent; yes.
R. E. Burke.....	Nets and seines are of best quality; boats are well built, to suit the different localities; a circulation of models would be unnecessary here.
W. Bingham.....	Nets and boats are of the best description, well suited for the N. E. shore, being built strong; if superior models were circulated an improvement might be made.
R. G. Zwicker.....	In some localities they are good, in others they are not; most of the boats in use are the best for this coast. The want of a good harbour north of Ingonish is the greatest drawback to our fisheries, being the best part of the coast, and no harbour even for large boats for over 60 miles of coast.
J. W. Burke & Sons.....	All the fishing gear is of the latest design and good quality; fishing schooners of the latest build are good models; a circulation of superior models would no doubt be of great improvement, especially in the northern part of the county.
William Burke.....	Nets and fishing gear are of the best description; schooners and boats are modelled to suit this coast, and cannot suggest any improvement.
F. W. Bissett.....	The boats and gear in use are all suitable and of the best description; some of the fishermen are poor and cannot afford to buy the best models, but they go as far as their means will allow them.
D. Grucery & Son.....	Nets and gear in use are of the best quality; vessels and boats employed suit very well and are always improving.
Alfred LeNoir.....	The nets and gear are made of the best material and style obtainable; models of vessels and boats are of the latest improvements and are well suited for our fisheries.
A. McQuarrie.....	Boats and gear are of the best description; but models circulated would improve the class of boats.
William Cameron.....	The boats and models are of the best description, and are very suitable for the fishermen.
G. Rowlings.....	The boats and schooners built are from good models; an improvement might be made if superior models were circulated.
W. M. Solomon.....	The nets and gear are of the very best description; our boats and vessels are unsurpassed; we feel we possess the very best models that can be found.
D. Evans.....	The seines, nets and gear are equal to anything used in the continent; our fishing schooners and boats would do for models for the world to build from.
Thomas Day.....	Yes; yes; no.
Wm. J. McGill.....	They are of the best description; our boats and schooners are built from first-class models; no need for improvement here.



QUESTION No. 8—NOVA SCOTIA—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

S. O. Parker.....	All new boats are made from the latest models ; nets also are of the best description.
J. A. Hatfield.....	The fishing materials, boats and schooners are very good, but still there might be an improvement made by the way you suggest.
Parker, Eakins & Co.....	The seines, nets, fishing gear, boats and vessels are the best that are known and need no improvement.
J. R. Kinney.....	Yes ; no.
J. W. Cossaboom.....	They are of the best description, and built from the best models in the Dominion and need no improvement.
W. M. Bailey.....	Not of the best ; the boats are not so good as should be used ; the schooners have improved this last few years ; models might assist to improve the boats, which is very much needed.
J. S. Miller.....	The fishermen are satisfied with their gear, nets and boats.
S. P. Burnham .....	Fair ; do not think models circulated would be an advantage.

## NEW BRUNSWICK.

Henry Murry .....	No seines used. They are built on fairly good models. Yes ; if fishermen had means to build.
C. Cormier.....	The smelt bag-nets used are of the best description. The boats are built upon good models.
Henry O'Leary.....	The nets are of the best description. The boats are good models for shore fishing, but too small.
R. Goodwin .....	No seines used. Our nets are good. The boats are good models and very fast, also safe.
Thomas Barry.....	Yes. The fishermen pride themselves on having good vessels and boats.
B. Brown.....	Seine-nets and fishing gear are of the very best. Boats are good models, fast and safe.
D. F. Campbell.....	Seines and nets of all kinds are of the best. Boats are good models, safe and seaworthy, fast, handy and good carrying capacity.
F. Todd.....	Nets and gear used on most improved style. The boats and vessels cannot be improved.
Joseph O'Brien.....	No seine-nets used, but fishing gear is of best quality. The boats and vessels are most suitably adapted for the district.
E. V. Rourke .....	Our class of boats are very good.
S. Stewart.....	The fishing gear is good, and boats well built.
James Hickson.....	Nets used are the best produced, and boats are built to suit the locality.
J. G. Williston.....	Yes. Boats and schooners are fairly built. I believe models circulated would improve them.

## PRINCE EDWARD ISLAND.

Daniel Davies.....	Boats and gear are in good order, and could not suggest any improvement.
R. Robbler.....	The seine nets are of the latest design. Boats used are of the ordinary character. Should advise better models for 15 and 30 ft. boats, which would be of great advantage.

QUESTION No. 8—PRINCE EDWARD ISLAND—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

- J. H. Myrick ..... Yes; the very best. Boats and schooners are of good models. The circulation of models would be a needless expense to the department.
- A. F. Larkin ..... The seines and nets are of the best description. Boats and schooners only fair. The circulation of good models, especially for boats, would be of great advantage.

QUEBEC.

- J. A. Verge ..... Nil.
- J. L. Smith ..... Fishermen are satisfied with such gear as they now use; their boats rightly worked will stand the roughest sea in the bay.
- Geo. Romeril ..... Consider their fishing gear as good as can be procured, and their boats equal to any fishing boats afloat.
- G. T. Annett ..... Nets and seines, though not of the best description, are generally good. The models of boats and vessels suit the business fairly well. Some of the vessels might need improvements.
- A. E. Collas ..... Fishing gear and boats used in the fishing industry are considered as good as can be procured.
- Alexander & Co ..... The nets, seines and other gear used are considered the best; the boats, for their size, could not be improved.
- Jos. Lemieux ..... No trap-nets in his division; cod is captured with hooks and lines, and herring with nets.
- J. I. Letourneau ..... Fishing gear and boats are of good quality.
- Johnny Joncas ..... The nets used are of good quality, and according to law. The small boats used are good enough for such fishing carried on with them. They must be light, so that a couple of men can handle them on the beach.
- Nap. Levesque ..... Seines and nets in use are of good description, but it would be advantageous to show our men good models for their boats and schooners, as those now in use are of inferior quality.
- U. Bherieur ..... Yes.
- N. A. Comeau ..... The fishing boats and gear are of the best description. The boats are from 20 to 25 feet long, sharp at both ends; clinker-built of cedar wood; very light and buoyant, and splendid sea boats. The schooners are from poor models, built and rigged by guess-work.
- T. Mignault ..... Nets and other fishing gear are of good quality, so are the fishing boats used; but the schooners are not as rapid as the American boats, although they stand rough weather as well.
- G. Mathurin ..... The nets, fishing gear and boats are of good quality, and good models to stand the storms.
- John Legouvie ..... Nil.

QUESTION No. 8—QUEBEC—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

Wm. Wakeham ..... The seines, nets and other gear are of the best description. The boats are the best that can be used for the purpose; their size varies according to the locality of shelter. The schooners are poor and small. It would be advisable to circulate improved models and plans. The bulk of these fisheries being purely inshore, large boats can advantageously replace vessels even on the banks.

QUESTION No. 9.—*Are there any oyster fisheries adjoining your county? What is their extent and productiveness?*

## NOVA SCOTIA.

R. J. Pollock ..... Very little; possibly 25 brls.  
 J. D. McQueen ..... Nothing of any consequence.  
 John McDonald ..... There is an oyster fishery in an arm of the sea within the county, producing about 200 brls. a year.  
 C. Robin, Collas & Co. .... Oysters are few, but we have a splendid harbour to build oyster beds, well sheltered and inland, and would yield a large revenue if once started, and would cost but little.  
 James Coady ..... Last year about 1,000 brls. were exported from my district.  
 D. F. McLean ..... About 1,600 brls. are taken annually, valued at \$3,200.  
 Lewis McKeen ..... About 1,500 brls. yearly, valued at 3,000.  
 W. Bingham ..... Yes; there are oyster beds, but they are not fished much, as there are no means of transit, either steam or rail.  
 R. G. Zwicker ..... Not to any extent.  
 J. W. Burke & Co. .... None of any account.  
 G. Rowlings ..... Only a small one at Musquodoboit Harbour; originally it was a good place, but it has been fished out.  
 Thomas Day ..... No; there are places where oysters could be planted, and heaps of shells have been laid up at places by Indians and early settlers.

## NEW BRUNSWICK.

Henry Murry ..... The oyster beds extend about 12 miles; quality is good; the beds are impaired by winter fishing.  
 C. Cormier ..... About three square miles, and produce about 1,000 to 1,500 barrels a year.  
 Henry O'Leary ..... The large and extensive beds in this county are entirely neglected and not protected in the northern part of the county.  
 R. Goodwin ..... There are many beds in this county, but not so productive as formerly. The present yield is about 100 barrels annually; they are the very best quality.  
 Thomas Barry ..... No.  
 B. Brown ..... No.  
 D. F. Campbell ..... No.  
 F. Todd ..... No.  
 Joseph O'Brien ..... No.

QUESTION No. 9—NEW BRUNSWICK—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

E. V. Rourke.....	No, but think oysters might be cultivated here.
S. Stewart.....	No.
James Hickson.....	There are oyster beds in Caraquet, scattered over the upper part of harbour.
J. G. Williston.....	Yes.

PRINCE EDWARD ISLAND.

Daniel Davies.....	A few small extinct beds are used by raising the shells for farming purposes.
R. Robbler.....	None, except west of Port Hill.
J. H. Myrick.....	Yes, the oyster fisheries of Cascumpec Bay and adjoining rivers; the Narrows, Malpeque Bay and Bedeque Bay are large in extent and very productive.
A. F. Larkin.....	Yes, but not of very great extent.

QUEBEC.

J. A. Verge.....	None.
J. L. Smith.....	None.
Geo. Romeril.....	No oysters in this county; experiments were tried in the Barachois here by the late Dr. Fortin, but were not successful.
G. T. Annett.....	No oysters in this county.
A. E. Collas.....	No oyster beds in the county of Gaspé. The late Dr. Fortin had deposited some oysters in Gaspé Basin; and although this first experiment did not prove successful, he would like to see a second attempt.
Alexander & Co.....	No oyster fishing.
Jos. Lennieux.....	No oysters here.
J. I. Letourneau.....	None.
Johnny Joncas.....	None.
Nap. Levesque.....	None.
U. Bhreur.....	No.
N. A. Comeau.....	None.
T. Mignault.....	There are no oysters here, but clams are often taken, especially for bait.
Gaspard Mathurin.....	No oysters, but some clams are taken for bait when other fish fail.
John Legouvie.....	Nil.

*Gulf Division:*

Wm. Wakeham.....	No oyster fisheries in the Gulf division. The necessary conditions would seem to exist at certain places, but although oysters were planted by the late Commander Fortin, without results.
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QUESTION No.10.—*State as near as you can the quantities of oysters exported from your county, the markets to which they are sent, and the prices at the grounds and on the markets respectively.*

## NOVA SCOTIA.

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

R. J. Pollock .....	Price at the grounds, \$3 per barrel. None exported.
John McDonald .....	About 2,000 barrels are taken annually and consumed in the locality. Price at the grounds, \$3 per barrel.
James Coady .....	About 1,000 barrels are exported to Pictou, New Glasgow, Halifax, St. John and Moncton. About \$1 per barrel paid on the grounds and \$1.75 to the above buyers.
D. F. McLean .....	About 1,500 barrels are sent to St. Pierre Miquelon, Halifax and Sydney. Price at the grounds, \$2; markets, \$3 per barrel.
Lewis McKeen .....	About 1,400 barrels to Sydney, Halifax and St. Pierre. \$2 and \$3 per barrel.
W. Bingham .....	About 500 barrels to Halifax. \$1 per barrel at the grounds and \$1.50 to \$2 on the markets.
Wm. Burke .....	Only about 10 barrels per year; used by persons in the locality. Price \$2 per barrel.

## NEW BRUNSWICK.

Henry Murry .....	About 2,500 barrels. Canadian markets. About \$2 on the spot, but prices vary.
C. Cormier .....	About 1,000 barrels. Canadian markets. About \$2 on the ground; at markets from \$3 to \$4.
Henry O'Leary .....	About 1,000 barrels. Canadian markets. About \$2 on the ground; markets about \$3.
R. Goodwin .....	About 100 barrels taken annually, realizing about \$4 per barrel from Shemogue.
Thomas Barry .....	None.
B. Brown .....	None.
D. F. Campbell .....	None.
F. Todd .....	None.
Joseph O'Brien .....	None.
E. V. Rourke .....	None.
S. Stewart .....	None.
Jas. Hickson .....	Unable to say.
J. G. Williston .....	Between 10,000 and 12,000 barrels. Canadian markets. Prices vary from \$1 to \$4, according to quality.

## PRINCE EDWARD ISLAND.

Daniel Davies .....	None.
J. H. Myrick .....	Would estimate the annual shipment at 4,000 to 5,000 barrels, chiefly to Canadian markets.
A. F. Larkin .....	About 30,000 barrels, chiefly consumed in Canada. A few are sent to Newfoundland and United States.

QUESTION No. 10—*Continued.*

QUEBEC.

FISHERY OFFICERS AND OTHERS.

ANSWERS.

J. A. Verge.....	Nil.
J. L. Smith.....	None.
Geo. Romeril.....	None.
G. T. Annett.....	None.
A. E. Collas.....	None.
Alexander & Co.....	None.
Joseph Lemieux.....	None.
J. I. Letourneau.....	None.
Johnny Joncas.....	Nil.
Napoleon Levesque.....	Nil.
U. Bhereur.....	Nil.
N. A. Comeau.....	None.
T. Mignault.....	Nil.
G. Matheurin.....	Nil.
John Legouvie.....	Nil.
Wm. Wakeham.....	Nil.

QUESTION No. 11.—*Do you consider the use of trap-nets injurious, and if so, please state in what particular?*

NOVA SCOTIA.

John McDonald.....	The fishermen in this county are opposed to any trap-nets being used. They maintain that they are very injurious to other fisheries, taking the parent fish as well as the young fish, and in the end destroy all kinds of fisheries.
C. Robin, Collas & Co.....	We do not find trap-nets injurious, they do not interfere with other fisheries; they give bait when other nets do not fish.
James Coady.....	The shore fishermen are unanimous in condemning their use in this locality.
D. F. McLean.....	Trap-nets, in my opinion, are not injurious, unless small fish caught therein are thrown away, in which event the fishing grounds would be polluted.
R. E. Burke.....	Our fishermen will not allow trap-nets to be used, and consider them injurious.
W. Bingham.....	No trap-nets used, but two are applied for, which the fishermen think will assist them in procuring bait for this port.
R. G. Zwicker.....	There are very few trap-nets used in this county; they are considered injurious as they are said to frighten the fish off shore; another objection is that some trap owners throw away on their fishing grounds quantities of small fish that are not fit for market.
J. W. Burke & Co.....	Trap nets are injurious. As a rule the fishermen will not allow them to be set in either bay or near the fishing grounds of this place.
William Burke.....	Do not consider them injurious.
F. W. Bissett.....	No.
D. Grucery & Son.....	I consider they are very injurious to our fisheries.
Alfred Le Noir.....	There is no trap-net fishing in this division.

QUESTION No. 11—NOVA SCOTIA—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

- A. McQuarrie..... Yes, most injurious, breaking up the schools of fish, and inclosing about 50 or 60 per cent of fish not wanted, and left on the beach to rot, or thrown back into the waters to pollute them, and drive all fish away from the grounds.
- Wm. Cameron..... Yes, to some extent; the meshes of the trap-nets being small, they take smaller fish than the gill-nets, and salmon being an inshore fish is liable to be caught in trap-nets, if these are allowed to be set in May or June, and although it is illegal to do so, yet the great value of this fish will induce the trap-net fishermen to dispose of them in a clandestine manner.
- G. Rowlings..... Some of the fishermen object strongly to them, but along this coast of Halifax county so few are used and so little caught by them that there can be no objection here.
- W. M. Solomon..... If properly set they are not injurious.
- D. Evans..... No.
- Thomas Day..... Yes, the mesh of the arms of trap are too small, killing large quantities of fish too small for sale. I would recommend a mesh large enough to allow unmerchantable fish to escape. Also the owners of the traps to be under a paid license.
- W. J. McGill..... Yes, in my district I do. They are very destructive to young fish.
- J. A. Hatfield..... I do; placing these traps near the entrance of rivers has operated against the increase of salmon in those rivers and destroying the young salmon on their way from the river. They are also claimed to be a benefit in supplying the cod fishermen with bait.
- Parker, Eakins & Co..... Trap-nets enable a large number of people to get a living by catching fish that would not otherwise be caught. Their use injures nobody.
- J. R. Kinney..... I do not.
- J. W. Cossaboom..... I consider they are injurious to the killing of spawn mackerel.
- W. M. Bailey..... Yes; most decidedly, as they kill so many young and small fish.
- J. S. Miller..... No; with proper restrictions.
- S. P. Burnham..... Consider them injurious, but have none here.

## NEW BRUNSWICK.

- Henry Murry..... Do consider them injurious, but do not use them here.
- C. Cormier..... They are injurious, as they catch all kinds of fish, and those that are not wanted are wasted.
- Henry O'Leary..... They are very injurious, as they catch all the small fish, which keeps the supply short.
- R. Goodwin..... Yes. The fishermen are too greedy and extend the leaders too far out from the shore, not allowing the parent fish to pass up stream. Fish naturally hug the shore in our waters and should be allowed to pass.

QUESTION No. 11—NEW BRUNSWICK—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

Thomas Barry.....	It is most injurious to the herring fishery, catching all the small ones.
B. Brown.....	Not used here.
D. F. Campbell.....	Not used here.
F. Todd.....	They are very injurious to the herring fishery.
Joseph O'Brien.....	They are very injurious, having destroyed the herring fishery and will eventually destroy the line fishery. It has proved most disastrous to our fishermen.
E. V. Rourke.....	Unable to say.
S. Stewart.....	They are very injurious, killing every fish that comes to the net.
Jas. Hickson.....	No; the trap-nets we use are not injurious.
J. G. Williston.....	Do not consider smelt trap-nets injurious. A trap-net set for alewives is most injurious and destructive to young salmon and bass.

PRINCE EDWARD ISLAND.

Daniel Davies.....	No trap-nets used except for lobsters.
R. Robbler.....	Do not approve of them.
J. H. Myrick.....	Consider trap-nets harmless when set in the sea; if placed in rivers, consider them injurious in preventing the fish from reaching their natural spawning grounds.
A. F. Larkin.....	Yes; they destroy the bait.

QUEBEC.

J. A. Verge.....	The trap-nets seen by him to capture salmon are injurious, catching a greater number than the plain wing-net. The granting of such license is unjust to those who fish the ordinary way.
J. L. Smith.....	No trap-nets used here.
George Romeril.....	Trap-nets are not injurious, but the size of the mesh should be regulated to allow small fish to escape.
G. T. Annett.....	Yes; trap-nets are injurious, destroying other fish besides those intended to be caught.
A. E. Collas.....	Trap-nets are not injurious. They enable the fisherman to capture fish that he could not take with hook and line. The size of mesh should, however, be regulated to allow the young fish to escape.
Alexander & Co.....	No trap-nets are used in this locality, but they are not considered injurious to fish, as the mesh should allow all small fish to go through.
Jos. Lemieux.....	No trap-nets in this division.
Jos. I. Letourneau.....	No trap-nets used in his division.
Johnny Joncas.....	None in this district.
Nap. Levesque.....	No trap-nets in use here. He thinks that while they might do for large fish, they would be injurious to small ones, because they would be lost before the traps could be raised.
N. Bhureau.....	None used in these waters.
N. A. Comeau.....	Yes; trap-nets are injurious, destroying young fish too small for market, consequently thrown away.



QUESTION No. 11—QUÉBEC—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

T. Mignault. ....	Trap-nets are not so destructive as seines. He states an instance where 1,000 barrels of mackerel were caught with haul of a seine at Seven Islands, while a trap-net set in the vicinity only captured half a barrel in three weeks.
G. Mathurin. ....	None in his division.
John Legouvie. ....	Trap-nets do not injure the fisheries, but cod seines should be stopped.

*The whole Gulf Division :*

Wm. Wakeham. ....	Trap-nets are only used on the north shore for cod and under restriction as to the size of mesh in the bar-net. They are the least injurious of all methods of fishing. Labrador coast being the only place where cod school on the surface, traps can be used there to the best advantage.
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QUESTION 12,—*Do you consider that trap-net fishing should be entirely prohibited, or whether it should be allowed under certain restrictions, and, if so, what restrictions ?*

## NOVA SCOTIA.

John McDonald. ....	In my opinion, and that of all the inhabitants and fishermen, they should be entirely prohibited.
C. Robin, Collas & Co. ....	Consider they should be allowed under certain restrictions, and only for certain localities where fishermen are in favour of them.
James Coady. ....	I consider that trap-net fishing should be entirely prohibited.
David Ross. ....	Fishermen do not consider they should be used at all.
D. F. McLean. ....	I consider that trap-net fishing should be allowed under certain restrictions, as they are necessary for supplying bait to boat fishermen. The restrictions necessary, in my opinion are, that all fish caught not fit to cure should be liberated alive.
R. E. Burke. ....	Entirely prohibited.
R. G. Zwickler. ....	Not entirely prohibited, but should be under restrictions.
J. W. Burke & Sons. ....	To restrict trap-nets to suit both owner and fishermen, which would be very difficult, as the fishermen of this county are entirely opposed to trap-net fishing.
Wm. Burke. ....	No trap-net fishing in this district, and cannot express an opinion.
F. W. Bissett. ....	No ; if all fish caught in the traps are taken on shore and dressed, cleaned, or otherwise disposed of, the main object being to prevent offal from being thrown overboard on the fishing grounds.
D. Grucery & Son. ....	Cannot say, but it may be beneficial for bait.
A. McQuarrie. ....	Entirely prohibited within the three-mile limit, the same with trawl and set-net fishing which must ultimately destroy the fishery.
William Cameron. ....	Should be restricted as much as possible for the taking of squid, and limited to three months, viz., July, August and September.

QUESTION No. 12—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

G. Rowlings.....	No.
W. M. Solomon.....	Not by any means, as it enables the fishermen to secure bait for the deep-sea fishing. The restrictions in the Fisheries Act are favourably recognized.
D. Evans.....	It should be carefully regulated and controlled; to prohibit them would lessen the catch of bait-fish and mackerel materially.
Thomas Day.....	No. Restriction of limit with regard to distance, meshes of twine. Traps are a great benefit to fishing vessels for the supply of bait.
M. J. McGill.....	No; I do not. There are places where a trap-net might be set which would not be injurious to young fish.
J. A. Hatfield.....	Not entirely prohibited, but only in places where they destroy the young salmon in descending the rivers.
Parker, Eakins & Co.....	The only restrictions should be as to the length of leader allowed each trap-net and the distance between them. We think the present regulations as administered by fishery officers are all right.
J. R. Kinney.....	No; the present regulations are sufficient.
J. W. Cossaboom.....	Should not be entirely prohibited. Trap-nets should not be set before July, as that would protect the spawn fish. If allowed to be set early in the spring they will soon kill off the mackerel.
W. M. Bailey.....	Entirely prohibited.
J. S. Miller.....	No; only restricted. Sunday close time thoroughly carried out, and the meshes of sufficient size to allow all young and immature fish to pass through.
S. P. Burnham.....	I do.

NEW BRUNSWICK.

Henry Murry.....	Trap-net fishing should be prohibited.
C. Cormier.....	Should be entirely prohibited.
Henry O'Leary.....	Should be prohibited, or in a short time the fishing will become extinct.
R. Goodwin.....	No; allowed under certain restrictions:—1st. That all traps should be one uniform distance from the shore. 2nd. That each leader should not have more than two traps. 3rd. There should be a weekly close time from 6 o'clock Friday evening until 6 o'clock Monday morning, and that both leaders and traps be taken up during weekly close time.
Thomas Barry.....	Not entirely prohibited, but greatly restricted; only one-half the present number of weirs should be allowed.
B. Brown.....	Unable to reply.
D. F. Campbell.....	Unable to say.
F. Todd.....	Very difficult to say.
Joseph O'Brien.....	Trap-nets should be entirely prohibited in rivers, as they destroy all kinds of fish that come to spawn.

QUESTION No. 12—NEW BRUNSWICK—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

E. V. Rourke .....	Cannot say.
S. Stewart .....	Should be prohibited.
Jas. Hickson .....	The same as now exist.
J. G. Williston .....	Trap-nets for salmon or alewives should be entirely prohibited.

## PRINCE EDWARD ISLAND.

Daniel Davies .....	Purse-seines for the capture of mackerel are considered injurious since they have been used.
J. H. Myrick .....	The present restrictions are ample. It is valuable to the fishing business by placing an abundant supply of bait to the fishermen at a nominal cost.
A. F. Larkin .....	Should only be allowed under very careful supervision, and with such regulation as would prevent the trapping and destruction of bait.

## QUEBEC.

J. A. Verge .....	It would undoubtedly become satisfactory that all fishermen should fish the same manner, pay the same rate of fees, either on the bar-net alone, or on all nets used, or so much per 100 lbs. on their catch.
J. L. Smith .....	No trap-nets in use here.
Geo. Romeril .....	Could be used provided the size of mesh is regulated.
G. T. Annett .....	Yes ; trap-nets should be entirely prohibited.
A. E. Collas .....	Nil.
Alexander & Co. ....	Trap-nets should not be prohibited. The price of such net, license fee, expenses of attending will be more than sufficient to prevent their becoming too numerous.
Jos. Lemieux .....	Nil.
Jos. I. Letourneau .....	No trap-nets here.
Johnny Joncas .....	None.
Nap. Levesque .....	Answered by No. 11.
U. Bhreur .....	No trap-nets used here.
N. A. Comeau .....	Trap-nets would not be injurious if limited to certain localities for the taking of cod only, and the mesh should not be less than 4 inches, to allow smelts and trout to escape. They should not be set before 10th July.
T. Mignault .....	Trap-nets could be allowed on certain conditions. When the owners have not sufficient hands to cure all the fish inclosed in the traps, the fishery officer should have authority to open such traps.
G. Mathurin .....	No remarks on trap-nets, but seining for cod is injurious as it destroys the young of that species.
J. Legouvie .....	Nil.
Wm. Wakeham .....	<i>The whole Gulf Division :</i> Trap-nets should be regulated by licenses, as to the size of mesh (not to be less than 4½ inches in leader), distance stated between each, as well as distance they should be allowed from the mouths of salmon rivers. The fee for cod traps is too high. The remarks on Questions Nos. 11 and 12 apply only to cod trap-nets, as there are no others in the Gulf division.

QUESTION No. 13.—*What are, in your opinion, the best measures to adopt in order to protect and improve the shad fishery?*

NOVA SCOTIA.

FISHERY OFFICERS AND OTHERS.

ANSWERS.

- |                     |   |
|---------------------|---|
| R. J. Pollock.....  | Enlargement of mesh of net to $5\frac{3}{4}$ inches to catch mature fish only. The abandonment of weirs. It is apparently useless to hatch shad in the rivers, to be subsequently slaughtered before they are full grown.   |
| G. Rowlings.....    | From Halifax east along the shore to the county line, there is no shad. The mill-dams have destroyed this class of fish and injured many others. The only remedy I know of is to have the dams built with an efficient fish-pass. A poor fish-pass and a poor warden will soon cause shad and all other fish to decrease. |
| W. M. Solomon.....  | Shad is almost an article of the past in this county.   |
| Thomas Day.....     | Last year there was a few taken from here, but we have too much sawdust in our waters, and it is one of the things that is against all fish coming in our rivers.   |
| J. A. Hatfield..... | The only shad we have are taken from the rivers. I think the best method this fishery is to protect the spawning grounds.   |
| W. M. Bailey.....   | I am of opinion that shad comes to our waters to spawn; they should be protected by a close season. I came to this belief last season after examining a number of shad taken from the Annapolis River last May and found them full of spawn.  |
| J. S. Miller.....   | Our principal fishery is in Scott's Bay, and twice before in this century the shad disappeared from 8 to 10 years: then they returned as plentiful as ever. I hope they will do so this time.   |

NEW BRUNSWICK.

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|----------------------|---|
| Henry O'Leary.....   | To have proper nets, a regular size mesh, so that small fish may escape, allowing only proper drift or set nets to be used.   |
| R. Goodwin.....      | That each boat carry not more than 250 fathoms of net. Commencement of season 25th June in all parts of the province of New Brunswick also two days' close time in each week. |
| Thomas Barry.....    | The spawning fish should be carefully protected.  |
| Joseph O'Brien.....  | They should be protected when they come to the spawning grounds in May and June.  |
| S. Stewart.....      | They should not be caught before 20th June. Sawdust and refuse from saw mills settling on feeding ground causes the shad fishing to be in a backward state.                   |
| J. G. Williston..... | Stop trap-net fishing for salmon on Miramichi River, and I believe shad will get thick again, as in former years.   |



QUESTION No. 13—*Continued.*

## QUEBEC.

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

J. A. Verge .....	No shad fishing in his district.
J. L. Smith .....	No shad fishing in this district.
Geo. Romeril .....	There is no shad fishing in this county.
G. T. Annett .....	The shad fishing of no account on this coast.
A. E. Collas .....	Nil.
Alexander & Co .....	No shad fishing here.
Jos. Lemieux .....	No shad fishing in his division.
Jos. I. Letourneau .....	No shad fishing in his division.
Johnny Joncas .....	No shad fishing in his division.
Nap. Levesque .....	No suggestions to offer to improve the shad fishing.
U. Bhreur .....	No shad fishing in this division.
Nap. A. Comeau .....	No shad fishing there.
T. Mignault .....	There is no shad fishing in his division.
G. Mathurin .....	None in his district.
John Legouvie .....	Nil.
Wm. Wakeham .....	Only a few shad taken in salmon nets. The artificial hatching of shad seems to have been successful elsewhere.

QUESTION No. 14.—*Do you consider it advisable that mackerel and herring gill-nets be taken out of the water in day-time?*

## NOVA SCOTIA.

R. J. Pollock .....	Yes.
J. D. McQueen .....	I do. By all means have them taken out every morning.
John McDonald .....	Fishermen should be strictly compelled to take up the nets during the day-time.
C. Robin, Collas & Co .....	Yes, certainly, mackerel and herring gill-nets should be taken out of the water in the daytime.
James Coady .....	I do not consider it injurious to the fisheries for gill-nets to be taken out of the water in the daytime.
David Ross .....	No.
D. F. McLean .....	Yes.
Lewis McKeen .....	I do.
R. E. Burke .....	I think it would be advisable to have the nets taken up in the daytime, as far as mackerel and herring are concerned. It would be very awkward for the cod fishermen to take nets up, as they depend on mackerel and herring for bait when they go out, and it would be impossible for them to take the nets up when they are going cod fishing.
W. Bingham .....	No. As a general rule, all fishermen bring their nets on shore early in the morning and dry them, and set them again in the evening, except when the weather is too rough, preventing the fishermen from taking them up. At such times the nets get torn.
R. G. Zwicker .....	No doubt it would be better, but it is a very hard law to the fishermen. During the mackerel hooking season it is very advisable. Some of the fishermen do not keep many nets out during this time, as it frightens the fish into deeper water.

QUESTION No. 14—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

- |                          |   |
|--------------------------|---|
| J. W. Burke & Sons ..... | In shoal water nets should, but in deep water it does not appear to matter much.  |
| Wm. Burke.....           | I do not consider it advisable, as it would be ruinous to the fishermen on this rough coast. They could not attend to taking up nets in the morning and setting them in the evening.  |
| F. W. Bissett .....      | No. They can do no injury except to their owners, who frequently lose numbers of them. It is quite impossible for fishermen to take their nets on shore during the day-time. As nets are often set five miles from shore, the fishermen cannot go there twice in one day; and if only a few mackerel or herring are found, they are used for bait for cod-fish; the boats then remain out all day cod fishing.                        |
| D. Grucery & Son.....    | Yes, by all means, as it prevents the fish from coming in shore.  |
| A. LeNoir.               | Yes.  |
| Allan McQuarrie .....    | I do, by all means, although the taking of them out would involve much extra labour. Fish taken in the early morning would stand a better chance of being cured properly, and the fish not taken would remain undisturbed and quietly feed on the ground for next night's fishing.  |
| William Cameron.....     | Yes, especially in harbours. When nets remain set in the day-time fish are debarred from entering the harbour. If the nets were taken up during the day they would fish better at night.  |
| G. Rowlings .....        | No.   |
| W. M. Solomon .....      | Would recommend the present system be continued.  |
| D. Evans .....           | Yes, when within 250 yards of the shore.  |
| Thomas Day .....         | I do, particularly within half a mile from traps, as they have a tendency to keep fish from entering the harbour in the day-time, and very few will mesh in the nets during the day.  |
| W. J. McGill .....       | In some places it is impossible to take up gill-nets each morning; but as a rule it is advisable to take them up.   |
| S. O. Parker .....       | Yes, certainly, as it causes the school of fish to split and get out of the bay; it is often a barrier, and they do not come in at all. It is also an obstruction for vessels coming in for bait  |
| J. A. Hatfield.....      | Yes, by all means.  |
| Parker, Eakins & Co..... | We think it would be better for everybody to have them taken up in the day-time. The fish do not mesh then, and the nets thus set act as barriers to turn the fish off shore, and prevent the trap-nets below them taking fish. Again, by not having to take their nets up, the fishermen set more nets than they can take care of, and when a school of fish strikes them, they cannot cure them in time to save them from spoiling. |
| J. R. Kinney .....       | I do. This I deem a most important subject. Many of our gill-net fishermen leave their nets down during the day, simply under-running them. These, I believe, do much towards breaking up the schools of fish.  |

QUESTION No. 14--NOVA SCOTIA--*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

- J. W. Cossaboom . . . . . Yes, I think they should be taken out, as it is very injurious to our fishing. Where they are allowed to remain in the water during the day-time, some of the fishermen set so many nets that they cannot take all the fish out of them before they spoil, and by that means it drives the live fish from our shores.
- W. M. Bailey . . . . . Yes.
- J. S. Miller . . . . . Most of the herring caught in gill-nets are caught in the night. I think the idea would be a good one to keep them out of the water during the day.

## NEW BRUNSWICK.

- Henry Murry . . . . . No.
- C. Cormier . . . . . No.
- Henry O'Leary . . . . . No.
- R. Goodwin . . . . . No.
- T. Barry . . . . . Yes.
- B. Brown . . . . . No.
- Joseph O'Brien . . . . . Yes.
- S. Stewart . . . . . Yes.
- Jas. Hickson . . . . . Yes.
- J. G. Williston . . . . . Yes.

## PRINCE EDWARD ISLAND.

- Daniel Davies . . . . . It is generally done now.
- R. Robbler . . . . . Yes.
- J. H. Myrick . . . . . Mackerel gill-nets should be lifted during the day and prohibited during spawning season; it would be hard to insist on taking the herring nets out, as the season is so short.
- A. F. Larkin . . . . . Mackerel nets should be raised during day-time; herring nets do no harm.

## QUEBEC.

- J. A. Verge . . . . . None used.
- J. L. Smith . . . . . It makes little difference, as mackerel and herring seldom mesh in day-time.
- Geo. Romeril . . . . . Yes, as it impedes navigation, more or less, and these fish seldom mesh in day-light.
- G. T. Annett . . . . . It makes little difference whether these nets are taken up or not in day-time, as very few would mesh.
- A. E. Collas . . . . . Nil.
- Alexander & Co. . . . . Herring nets are only set for bait at night-time and taken up about sunrise; would consider it useless to leave them out in day-time.
- Jos. Lemieux . . . . . These nets are always taken out of the water in day-time in his district.
- Jos. I. Letourneau . . . . . Yes.
- Johnny Joncas . . . . . Yes; these nets should be raised every day.
- Nap. Levesque . . . . . It is advisable that herring gill-nets be taken out of the water in day-time.

QUESTION No. 14—QUEBEC—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

U. Bhéreur .....	None in use here.
N. A. Comeau .....	Yes ; all mackerel and herring nets should be taken up during day-time.
T. Mignault .....	Yes ; mackerel and herring nets should not be set as to catch fish during day-time ; parties not complying should be prosecuted.
G. Mathurin .....	It would be advisable to raise the said nets in day-time.
John Legouvé .....	It does not matter, as they seldom catch fish in day time.

*The whole Gulf Division :*

Wm. Wakeham .....	The mackerel and herring nets should be raised from the water during the day-time. These nets will fish better and last longer if dried every day ; they are always in the way of vessels when left in the water, and keep the fish off shore, but do not catch any.
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QUESTION No. 15.—*How are fishermen in your county situated as to supplies of fresh bait ? Have you any recommendations to offer regarding this subject ?*

NOVA SCOTIA.


J. R. Pollock .....	Sufficient for all requirements.
J. D. McQueen .....	Bait is plentiful in the spring months, but very scarce after 1st July.
John McDonald .....	The fishermen of this county can supply themselves with bait nearly every day they wish, as they are well provided with good nets.
C. Robin, Collas & Co. ....	Fishermen in this locality have no means of keeping fresh bait as they should have ; some days it is abundant and others scarce for want of a freezing apparatus. We strongly recommend a freezer to be put up in this vicinity. Fishermen are ruining themselves by buying preserved clams, at high prices and in many cases they are worthless.
James Coady .....	The lobster fishermen and bankers during the past year have experienced great difficulty in obtaining the necessary quantities of fresh bait.
David Ross .....	Fair. The only recommendation would be to erect a freezer.
D. F. McLean .....	Supply of bait is one of the greatest drawbacks in the county to the fishermen.
Louis McKeen .....	do do do
R. E. Burke .....	Scarcity of bait could be greatly relieved by the distribution of a few barrels of preserved clams, among the fishermen which they could use in in the absence of fresh bait.



QUESTION NO. 15—NOVA SCOTIA—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

- W. Bingham. . . . . Would recommend the department supply them with bait traps under proper restrictions—that is, each trap placed in most accessible localities under the supervision of responsible parties presided by the overseer of fisheries; the inshore fisherman to be assisted by receiving his bait free and the fishing fleets to pay a nominal figure, the proceeds to be remitted to the department. This would be a great boon to fishermen, who would make quick returns, through not being delayed by waiting for bait, which is often the case during the fishing season.
- R. G. Zwicker. . . . . At times fresh bait is very scarce and sometimes there is none at all.
- J. W. Burke & Sons. . . . . Fairly well. Fishermen in this locality suffer for want of ice-houses to keep their fresh bait in, as bait is not always caught regular from day to day, particularly the squid bait.
- W. Burke. . . . . Not well situated for summer fishing; would recommend that ice-houses be built for preservation of bait in hot weather, and an artificial freezer at each fishing station would, in my opinion, be a great benefit.
- F. W. Bissett. . . . . They generally get a sufficient quantity of fresh bait for their own use.
- D. Grucery & Son. . . . . Very well situated. None.
- Alfred LeNoir. . . . . Fishermen catch their own bait which is plentiful along the shore in spring and summer, and often supply bankers.
- Allan McQuarrie. . . . . The supply of fresh bait is uncertain with exception of clams, &c., a supply which is always within reach at low tides. Bait could be kept in ice, as now done in Canso.
- Wm. Cameron. . . . . Those living in the vicinity of trap-nets are well supplied in this respect, others find their supply of bait very uncertain. If bait could be regularly obtained, cod fishing pays the best of any. I would recommend the department to encourage the erection of refrigerators at various points accessible to the line fishermen. With a continuous supply of fresh bait, the cod and haddock fisheries in this locality are capable of astonishing development.
- George Rowlings. . . . . They generally have plenty, and when they cannot get fish they use clams. None.
- W. M. Solomon. . . . . Poorly situated.
- D. Evans. . . . . We have difficulty in obtaining sufficient bait for our deep-sea fishermen, and any regulations that would prevent the taking of bait fish in trap-nets would be a great injury to our fishermen.
- Thomas Day. . . . . Of late years there has been a great scarcity of bait, the last two years there has been a very few squid. Messrs. Whitman of Canso could furnish you with valuable information regarding frozen squid for bait.  ab.

QUESTION No. 15—NOVA SCOTIA—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

W. J. McGill.....	There is a scarcity of fresh bait. If our rivers were opened up to give alewives an easy passage to their spawning grounds, it would be one of the means to increase the supply of bait in my district.
S. O. Parker.....	Plenty of bait last year. Would suggest that no <i>modus vivendi</i> with the United States should be renewed. Our bait for our own fishermen.
J. A. Hatfield.....	Bait supply is no more than sufficient for our own fishermen. In many instances the shore and fishing fleet are unable to obtain enough bait to enable them to continue their catches. Our Government must rigidly preserve all our fresh bait for provincial fishermen.
Parker, Eakins & Co.....	Very badly situated; it is the greatest difficulty the fishermen have to contend against. Would recommend every means be tried to induce Newfoundland to remove the restrictions against Canadian vessels obtaining bait on their shores.
J. R. Kinney.....	Fairly supplied. The early take of alewives and spring herring cannot supply the demand. Later the traps supply the needs of the cod fishermen.
J. W. Cossaboom.....	They are not very well supplied with fresh bait. The greatest destruction is killing so many small herring for sardines, and if allowed our fishermen will be without bait in a few years.
W. M. Bailey.....	Generally short; in the early spring and late summer plenty of ice provided by our fishermen would help; also taking care of bait by freezing when plentiful.
J. S. Miller.....	Until a few years ago had a good supply; since then at times, they have been short. Fishermen complain of lobster traps, and say when the traps are set they can't get any bait, the traps being baited with gurry and string along the shore one-quarter to one-half a mile distant. The fishermen state the herring will not come inside the line of traps.
S. P. Burnham.....	Do not use it. None.

NEW BRUNSWICK.

Henry Murry.....	They use very little. None.
C. Cormier.....	Well supplied. No.
Henry O'Leary.....	Well supplied with bait. I recommend that the bounty should be given towards the construction of proper boats to fish in deep water and on the banks; a great deal is now given to small shore boats that don't earn it.
R. Goodwin.....	No scarcity of bait until last year, when it had to be imported, costing \$4 per barrel. As a general rule the demand regulates the supply.
Thomas Barry.....	Bait is plentiful during most of the year.
B. Brown.....	Bait at times is scarce, as the weir owners sell the small herring to sardine buyers.
D. F. Campbell.....	The supply of bait is generally good. Weir owners often charge too much for bait when it is scarce.

QUESTION NO. 15—NEW BRUNSWICK—*Continued.*

## FISHERY OFFICERS AND OTHERS.

## ANSWERS.

F. Todd .....	Seldom troubled by scarcity.
Joseph O'Brien .....	Bait is very scarce—almost impossible to obtain any, and vessels have to be hauled up as the fishermen cannot make it pay.
S. Stewart .....	There is plenty of bait, but only net fishing is carried on here.
Jas. Hickson .....	The fishermen are generally well supplied with bait.
John G. Williston .....	The fishermen are well supplied with bait. I would recommend the oyster close season be changed to 1st May to 1st October, instead of 1st June to 15th September.

## PRINCE EDWARD ISLAND.

David Davies .....	Herring bait is abundant during May. Bait is always scarce during summer and autumn. Clam bait is largely used, and is found in the sand when the tide ebbs. The supply is very limited.
R. Robbler .....	Very poorly. If the department would supply any recommendation as to the best means of keeping bait fresh, we would feel grateful.
J. H. Myrick .....	Very badly indeed, and a great loss is incurred in searching for bait; is a great drawback to the fishermen. If a sure supply of fresh bait could be provided for the fisherman, difficulties under which he is now labouring would be greatly removed. We recommend that the department encourage a good class of fishermen to migrate during the fishing season, and have built and operated at central points freezers and cold stores, to provide a good supply of fresh bait.
A. F. Larkin .....	Local fishermen well supplied. None.

## QUEBEC.

J. A. Verge .....	None used here.
J. L. Smith .....	Thinks fishermen should be allowed to take smelts for bait at all times, free of charge.
Geo. Romeril .....	Fishermen are often idle for want of bait. The freezing of bait is being experimented by this firm at head of Baie des Chaleurs, so far with success. Large quantities of herring and caplin are yearly used as manure by the farmers, which tends to cause the further scarcity of these bait fish.
G. T. Annett .....	Bait vary in quantity and quality with each season. No recommendation to make now.
A. E. Collas .....	Scarcity of bait could be obviated by the adoption of the frozen bait system which they are now experiencing with successful results.
Alexander & Co .....	Very often valuable time is lost for want of bait, sometimes having to go over twenty miles for it. Cannot see how to improve this want.
Jos. Lemieux .....	Fishing is always carried on here with fresh bait; when it runs out there is no fishing.
Jos. I. Letourneau .....	Bait is kept in cold water; some have ice-house. The remedy is more ice stores to keep it fresh.

QUESTION No. 15—QUEBEC—*Continued.*

FISHERY OFFICERS AND OTHERS.

ANSWERS.

Johnny Joncas . . . . .	Nil.
Nap. Levesque . . . . .	No bait used here. No suggestion offered.
U. Bhéreur . . . . .	None used here.

NORTH SHORE:

Nap. A. Comeau . . . . .	The bait supply is generally sufficient here. When herring, caplin or lance fail, the fishermen still resort to clams and other shell fish.
T. Mignault . . . . .	On the north coast bait is generally procured with seines.
G. Mathurin . . . . .	The best way to secure bait on the north coast is with seines. Some use nets.
John Legouvé . . . . .	The bait supply is good.

THE WHOLE GULF DIVISION :

Wm. Wakeham . . . . .	No other but fresh bait used ; it is often scarce and uncertain. The practice of using herring and caplin for manure should be stopped. These fish could be frozen in the early spring and kept fresh when other bait would fail. This is being experimented and soon most of the fishing firms will be provided with freezers for that purpose. On the north shore the supply of bait shows no sign of decrease.
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## INLAND FISHERIES.

QUESTION No. 1.—*Give the names of all rivers and streams in your county frequented by salmon and other fish for the purpose of depositing their spawn, with the different species of fish and the times of year at which they respectively ascend those waters.*

QUEBEC.

FISHERY OFFICERS.

ANSWERS.

Alfred Blais, Causapschal. . . . .	Metapedia, Causapschal, Amqui, Metallic Brook, St. Pierre and Little Matane Rivers. In the two first, salmon and trout are found ; in the others, only trout. These fish spawn in October and November.
J. F. Picotin, Drummondville. . . . .	River St. Francis. Salmon ascend for the purpose of spawning between the 15th June and 15th July yearly, pickerel during the month of May, and bass later on. Carp also ascend in great numbers in May and June.
Joachim Laberge, Châteauguay Basin. . . . .	Rivers Châteauguay, Turgeon, du Marais, des Fèves, aux Anglais, Ste. Clotilde d'Aubray and Blanche de Corbin are frequented by maskinongé, bass, pickerel, pike, sturgeon, eels, carp and other coarse fish. These fish spawn between the 15th April and the 15th July.



QUESTION No. 1—QUEBEC—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

- John Kelly, Beauharnois . . . . St. Louis River, county of Beauharnois; Grosse Isle River from Valleyfield to St. Timothée, Châteauguay, Trout, Hinchinbrook, Salon, Legarre, in the County of Huntingdon. Black bass, pickerel, pike, perch, rock bass, sturgeon, maskinongé and trout frequent these rivers. The spawning season commences about 15th April and ends about 15th June.
- J. O. Dion, Chambly Canton . . Richelieu or Chambly River, Little Montreal River, River des Hurons. Perch, barbotte, pike, pickerel, bass, eels and carp ascend these rivers during the month of May until the end of June. Maskinongé and shad are very scarce. Fresh water herring is disappearing.
- J. B. Chevalier, Iberville . . . . Richelieu River, Hazen, Barbotte, Jones, Bleury, South, Lacolle, are frequented by pickerel, bass, pike, carp, barbotte, perch. These fish spawn in the month of April.
- P. E. Luke, Philipsburg . . . . Missisquoi Bay, Pike River. Frequented by pickerel, which ascend about 20th April to spawn. Suckers and mullet ascend during May; also pike, maskinongé, bass, perch, eels and bullheads remain in river all summer. Street's Pond frequented by pike and bullheads. Selby Lake, Dunham township, frequented by bass, pike, suckers and salmon-trout.

## EASTERN TOWNSHIPS.

- P. W. Nagle, Sherbrooke . . . . Nil.
- Joel Shurtleff, Compton . . . . Salmon River No. 1 and Salmon River No. 2; the former frequented by salmon in October and the latter by trout; these fish ascend in October. Rivers Moes, Coaticook, Eaton, Scotstown, Chaudière, Spider, Arnold and St. Francis; these rivers are frequented by bass, trout, salmon, pike and maskinongé. Trout ascend these waters in October.
- A. L. Darche, Sherbrooke . . . Rivers St. Francis and Maskinongé. The former is frequented by salmon, pike, bass, doré and maskinongé. Salmon ascend 1st July to 15th August; the other fish from 1st April to 15th May. The latter river is frequented by pike, bass, doré and maskinongé from 1st April to 15th May.
- J. B. McDonald, Echo Vale . . Rivers Chaudière, Spaulding, Arnold, Victoria, Spider and Annance frequented by suckers, bass and trout in June to September.
- V. Veilleux, St. Ephrem de Tring . . No salmon in our streams.

QUESTION No. 1—QUEBEC—*Continued.*

RIVER ST. LAWRENCE—LAKE ST. PETER.

FISHERY OFFICERS.

ANSWERS.

D. Shooner, Pierreville.....	Rivers St. Francis, Yamaska, Lake St. Peter, frequented by maskinongé, bass, doré, perch, suckers, sturgeon, pike and barbotte. These fish ascend between 15th April and 1st June.
Geo. Boisvert, Bécancour.....	Rivers Nicolet, Bécancour, Gentilly and Aux Originaux frequented by bass, doré and common fish. They spawn in May.
S. A. Grant, Louiseville.....	No salmon or other fish spawn in the rivers here.
Jos. Charbonneau, St. Césaire.....	Yamaska River, Black River, Barbué River and South-west River.
Jno. Morris, St. Lambert.....	Rivers Laprairie, LaTortue, Précipité and Little Lake. Pike, bass, doré, maskinongé, eels and perch are found in these waters. Carp is found at the mouths of these streams when ice disappears. These fish spawn about the 1st June.
A. Robert, Lachine.....	Only part of the St. Lawrence River.
Jos. Lauzon, Terrebonne.....	Rivers Laprairie, St. Jean Baptiste and Duchêne, are frequented by doré, pike, bass, perch, carp, sturgeon, eels, &c. Spawning commences the beginning of May.
J. Filiatrault, Ste. Adèle.....	Nil.

OTTAWA RIVER DIVISION.

R. Jones, St. Andrews East..	Rivers Ottawa, North, Rouge, where the fish ascend in the spring.
R. Joynt, Joynt P.O.....	Nil.
Jos. Marion, Hull.....	The Ottawa River and the following tributaries: Gatineau, Grande Blanche, Le Lièvre, Petite Blanche, Nation and Salmon River, in which pickerel, bass, pike, carp, &c., ascend to spawn between 15th April and 15th June.
J. T. Coghlan, Chapeau.....	Black River, Creighton's Lakes, Calumet Creek, Nicaba Creek and Sullivan's Creek. Maskinongé, pike and black carp ascend between 15th April and 15th May. Bass and pickerel from 15th May to 15th June.

ONTARIO.

LAKE SUPERIOR.

Thos. Keefer, Port Arthur...	Names of streams not given. Speckled-trout, whitefish, pickerel and sturgeon ascend the streams to spawn. Not positive as to the dates.
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NORTH CHANNEL.

Isaac Turner, Little Current..	Whitefish River is frequented by whitefish and (doré) pickerel, which ascend therein to spawn in the fall and spring respectively.
Robt. Boyter, Gore Bay, Manitoulin Island.	Michael, Providence and Striggly Bays, south of Manitoulin Island,—frequented by trout from 1st of October till middle of November.

QUESTION NO. 1—ONTARIO—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

F. Prout, Bruce Mines. . . . . Walker's River. Pickerel go up in April.

## LAKE HURON.

R. H. Murray, Allenford. . . . . None.  
 Hugh McFayden, Durham. . . . . Saugeen River, its four branches, and Beaver River,  
 —frequented by speckled-trout; beginning to  
 spawn about 1st September.  
 J. C. Pollock, Forest. . . . . Not any.  
 H. W. Ball, Goderich. . . . . In Maitland River, black bass, pickerel and suckers  
 ascend to spawn. Bass and pickerel commence  
 spawning about 10th May.  
 H. B. Quarry, Parkhill. . . . . The Bayfield and Aux Sables Rivers. Bass and  
 coarse fish ascend beginning of May.

## LAKE ST. CLAIR AND TRIBUTARIES.

C. W. Raymond, Mitchell's Bay. Pike and pickerel spawn in spring about the last  
 of April and beginning of May.  
 P. McCarron, Wallaceburg. . . . . River Sydenham and branches,—mullet, suckers,  
 pike, pickerel and small bass, a few maskinongé,  
 —commence to run up 1st March, leave 15th  
 May.  
 T. McQueen, Chatham. . . . . Only the River Thames, in county Kent, Baptiste  
 Creek, Jeannette Creek, Indian Creek, are the  
 only streams that are frequented by bullheads,  
 catfish and a few pike, which ascend in the months  
 of January, February, March and April.  
 P. McCann, London. . . . . The north branch of the River Thames runs through  
 St. Mary's, in the counties of Perth and Middle-  
 sex, towards London, where it meets and joins  
 the south branch, forming the main River  
 Thames, running to Lake St. Clair. The prin-  
 cipal fish are pickerel, bass, and large quantities  
 of coarse fish, which ascend the Thames about the  
 middle of March or early in April, according to  
 the breaking up of the ice. The above applies  
 more particularly to pickerel and bass, as coarse  
 fish run up the river as late as the last of April  
 or the beginning of May.  
 Jos. Boismier, Sandwich. . . . . Detroit River, Canard River, Turkey Creek, Little  
 River, Roscow River, Puce River, Pike Creek,  
 Belle River, Baptiste Creek, Jennette Creek,  
 River Thames, in which are found whitefish,  
 bass, herring, pickerel, maskinongé, pike and  
 coarse fish. Whitefish and herring ascend from  
 the 1st of October; pickerel, bass, pike, maskin-  
 ongé begin to ascend from the 1st of April.

QUESTION No. 1—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

LAKE ERIE.

- Wm. Prosser, Leamington.... Big Creek, near mouth of Detroit River, is the only stream in this division in which fish of any account spawn—from the last of April and beginning of May.
- David Girardin, Point Pelée... There is no regular stream in this district running the whole year. Cedar Creek, at Kingsville, Big Creek, near Amherstburg, and Sturgeon Creek, near Leamington, in spring are frequented by a great many pike and suckers, which I think, deposit their spawn therein. These creeks get closed with sand during dry season.
- John McMichael, Blenheim... Kettle Creek, Port Stanley, Catfish Creek, Port Bruce, are the only streams in this county. They are frequented by suckers, mullet and catfish only, during the months of March, April and May.
- David Sharp, Port Ryerse.... The only streams in which fish go to spawn are Big Creek, Port Rowan Bay—about the months of April and May; Black Creek, at Port Dover, may be frequented by pike only in the spring of the year.
- C. W. Evans, Cayuga..... The Grand River is the only stream in this district which bass, pickerel and maskinongé ascend for the purpose of spawning—during April, May and June.
- W. P. Croome, Brantford.... Grand River, Whiteman's Creek, River Nith, River Speed, in which bass ascend the streams during the latter part of May and June, pickerel during the month of May, and pike during the month of April and early in May.
- Geo. Price, St. Williams ..... Has charge of Long Point Island, extending in Lake Erie, which has a large marsh on the north side with several openings to the Inner and Outer Bay, called creeks. The fish ascend those creeks to spawn, as follows:—Pike, from 1st of April to 1st of May; pickerel, from 15th of April to 15th of May; bass and maskinongé, from 1st of May to 15th of June.

LAKE ONTARIO.

- Fred. Kerr, Hamilton..... Niagara River and Twenty-mile Creek are the only streams that are in my division proper. The former is frequented by pickerel, bass, sturgeon, perch and herring and a few whitefish. The pickerel and sturgeon ascend the river from Lake Ontario to spawn, the former in April and May, and the latter in the end of June and the month of July. The Twenty-mile Creek runs across part of this district. Speckled-trout frequent it at all times.
- Wm. Sargent, Bronté..... In Credit River, Sixteen-mile Creek and Twelve-mile Creek salmon, bass, mullet, pike and suckers run up from about 15th April to 15th May to spawn.



QUESTION No. 1—ONTARIO—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

- Wm. Helliwell, Highland Creek, River Rouge, Highland Creek, Humber, Mimico, Etobicoke.—Formerly salmon frequented all of the above streams, but of late years, from the clearing of land and draining of swamps and the consequent diminishing of the water, salmon is very rarely seen. In the month of March and April, if there is any rain and the streams are swollen, coarse fish ascend all the above streams. Formerly, in the month of June, mullet, a very superior fish to suckers, came in great numbers, but for some cause unknown they do not now return to the streams. Pike and bass come into the Don and Humber Rivers and estuary of the Highland Creek about the same season, viz., March and April.
- Chas. Gilchrist, Port Hope . . . There are no salmon coming up the streams of this division. Pike and bull-heads come up some of the streams in the spring of the year to spawn where there are marshes; they do not go up far.
- W. P. Clarke, Belleville . . . . . Trent River, Moira River and Salmon River are the only streams in the county of Hastings. Pike, pickerel and suckers are the only fish that run up these rivers to any extent. Pike commence to run about the 1st April and for about a month. Suckers commence about five days after the pickerel and stay until about the 10th of June.
- Jos. Redmond, Picton . . . . . None.
- A. D. Sills, Napanee . . . . . In Napanee River pike, pickerel and coarse fish ascend during April and May to spawn.
- R. R. Finkle, Bath . . . . . No rivers and streams in my district, only Bay of Quinté and Lake Ontario. Salmon-trout and whitefish spawn from 1st October to 1st November, pickerel and bass from 15th April to 15th June.
- Peter Kiel, Wolfe Island . . . . There are no rivers or streams in this district that are frequented by salmon or any other kinds of fish for the purpose of spawning.
- INLAND WATERS.
- Thos. Merritt, Kingston . . . . . Loughboro' Lake, Dog Lake and Lake Ontario and St. Lawrence River contain salmon-trout, catfish and herring which go to the spawning beds. In October and November these waters also abound with bass, maskinongé, pickerel (doré), pike and coarse fish which deposit their eggs in April and May.
- N. Acton, Gananoque . . . . . There are no streams excepting the Gananoque River, which fish cannot ascend to spawn on account of falls.
- Henry Hunt, Rockport . . . . . None.
- T. McGarity, Cornwall . . . . . There are no salmon in this district. Suckers and other coarse fish ascend from Lake St. Thomas about the 1st of May in the River aux Raisins up to about 15th June.
- P. St. Pierre, Pointe Fortune. . . None.

QUESTION NO. 1—ONTARIO—*Continued.*

FISHERY OFFICERS.	ANSWERS.
O. Miron, Alfred.....	South Nation River, Bearbrook and Skoath River frequented by pickerel, bass, pike and all kinds of coarse fish, about 15th April to 15th May.
W. W. Boucher, South March.	Ottawa River, Constant Creek and Lake, Carp River. Bass ascend last week in May and first week in June; pickerel during the month of May; maskinongé last of April and first of May; whitefish ascend about the first week of November; coarse fish from 15th April to 15th May.
John Grant, Forester's Falls..	Madawaska River, Bonnechère, Muskrat, Indian, Petewawa and Chalk Rivers. Several kinds of fish ascend in the spring of the year.
J. S. Richardson, Sturgeon Falls	In the district of Nipissing the Mattawa River has no fish worth mentioning, as about 60,000,000 feet of logs are driven down that river every summer, and the bark and gum that detach from them destroy the fish. Pike, pickerel, maskinongé, suckers, sturgeon ascend the Sturgeon River for spawning from about 15th April to 15th July. They ascend the Veuve River, and go into different streams and lakes about 60 miles up; the South River and the Wissawasa River, from about 15th April to 15th July. There are also a great number of little fish.
George R. Steele, Lorimer Lake.	The streams which are frequented by pickerel, bass, herring, pike, salmon-trout, maskinongé and suckers for the purpose of depositing their spawn, are as follows: Part of Seguin River, Boyne River, East River, Sheboishkong River, Shawanaga River, Magnetawan River, White Stone River. The spawning season for pickerel, from 10th April to 15th July; bass and maskinongé, 15th April to 10th June; whitefish and salmon-trout, 15th October to 15th November.
J. G. Rumsey, Huntsville. ....	Maganetawan River, Muskoka River (north branch), Ox Tongue River and a large number of land-locked lakes. Salmon-trout spawn about October 15th, but varies in the different lakes; speckled-trout spawn as above; whitefish and pickerel not known, as no netting is allowed in his division.
H. W. Gill, Ufford.....	The fish nearly all spawn in the lakes; pickerel, however, frequent one or two small streams for the purpose of depositing their spawn, which is generally in April. The spawning season for salmon-trout is generally October, for whitefish November, for bass the end of May to middle of June.
Henry Castle, Gravenhurst...	None.
L. S. Sanders, Barrie.....	The only stream (no rivers) in his district which enters Lake Simcoe is the Lollendale. The kind of fish found in this stream are chub, dog-fish and suckers. He is not aware what time in the year these fish spawn, as he has never paid any attention to them.

QUESTION No. 1—ONTARIO—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

- A. Hughson, Orangeville. . . . . The River Credit is the only one that is frequented by trout. Salmon-trout come up the river as far as the Credit Forks in the fall of the year. Speckled-trout are also found chiefly in the upper portion of the river, say from the forks to Orangeville and neighbourhood, and also in Caledon Lakes.
- N. Simmons, Meyersburg. . . . . Trent River is the principal stream in this division, although there are other small creeks and streams inhabited by fish, such as Coal Creek, Salt Creek, Meyersburg Creek and Trout Creek. Some years ago there used to be salmon in the Trent River, but none are now seen. Pickerel from Chisholm Rapids come all the way to Meyersburg to spawn, as it is the only suitable place. They ascend from the 15th April to 8th May. Maskinongé go to the drowned lands or on mud bottoms to lay their ova, about the same time as the pickerel. The bass spawn in deeper waters from April until June.
- G. W. Fitzgerald, Lakefield. . . . . Otonabee River, Indian River and Pigeon Creek, are frequented with bass and maskinongé, which ascend them in April and May to spawn. The only water that salmon-trout has been caught in is Stony Lake; they spawn from about the 20th of October to the 15th November. There is plenty of whitefish in Stony Lake; they spawn in first half of November.
- David Breeze, Peterboro'. . . . . Otonabee River, Indian River and River Ouse, all empty into Rice Lake and are frequented by bass and maskinongé. Bass run up these streams from about the 1st of May to 10th June, and maskinongé from about 20th April to 20th May.
- Wm. Gainsforth, Haliburton. . . . . Trout, the only fish in this district, do not ascend the rivers but spawn in the lakes from 1st to last of October.
- R. A. Gilbert, McLaren Depot. . . . . In the district of North Addington, the following lakes: Upper and Lower Trout, North and South Crotch, Gull, Rice, Malcolm, Long, Indian, Brulé, Shaw, Fortune, McKay's, Schooner, Clyde, Red Horse, Mair's, Norway, are frequented by salmon-trout and whitefish, spawning between 15th October and 30th November. In the two first are found speckled-trout.
- Geo. Lake, Tichbourne. . . . . In the following lakes: Desert, Devil, Canoe, West Rideau, Green Bay, Crow, Eagle, Sharbot, Gull, Silver and Madawaska, some salmon-trout and whitefish commence to spawn about the 10th October till the last of November. Bass and other kinds of fish spawn in month of May.
- Wm. Hicks, Athens. . . . . In Charleston Lakes, Lyndhurst River and Rideau waters there is valuable fish, such as bass, whitefish, pickerel, &c.

QUESTION No. 1—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

- Geo. Jeacle, Westport. . . . . The only streams frequented by salmon-trout in my division are the lower Rideau. They generally spawn between 1st October and 15th November. The same waters are well stocked with whitefish, whose spawning time is generally over by 15th November. Whitefish also found in Wolf Lake, Indian Lake and Whitefish Lake, which run into Morton. Bass, pike and shiners are plentiful in said waters as well as bullheads, eels and suckers.
- John Murphy, Perth. . . . . In the Rideau Lakes, salmon spawn from 8th to 25th October; whitefish, if weather is cold, end of October, if warm a week earlier. Bass spawn on sandy banks last of May to June 15th. There are only black bass in the inland lakes.
- Eph. Deacon, Bolingbroke. . . . Clyde, Mississippi, Fall and Tay Rivers, are frequented by pike, pickerel, black bass and whitefish, which with the exception of the latter, spawn from 1st April to 1st May; whitefish in November.
- A. Wilson, Carleton Place. . . . The Mississippi and Carp Rivers, where fish spawn in April and May.
- R. O. Campbell, Kemptville. . . The rivers or streams are: 1st, Rideau, from Burritt's Rapids to Ottawa; 2nd, south branch of Rideau, from Baker's Mills to mouth; 3rd, Stephen's Creek; 4th, Jock River, emptying into Rideau below Manotick. Frequented by pike about 1st April; black suckers near same time; pickerel in April; maskinongé last May and first June; black bass, speckled and rock bass in July. I do not know when eels and mudpout spawn, but both are mostly destroyed by drawing off the water of the river every fall.
- Geo. Russell, Arnprior. . . . . Madawaska and Bonnechère Rivers. Whitefish and salmon in November, pike in April, pickerel in May, black bass May and June.
- M. L. Russell, Renfrew. . . . . Maskinongé ascend Bonnechère and tributaries. Bass, 15th April to 15th June; pickerel, 10th April to 10th May; pike and maskinongé, 10th April to 1st July. Trout ascend and frequent upper lakes about month of October.
- H. Gallagher, Sebastopol. . . . Bonnechère, Madawaska, Constant Creek, Hurd's Creek and other small tributaries are frequented by salmon-trout, pike, bass, pickerel, perch, chub, speckled or brook trout and whitefish and eels. Salmon-trout begin to run about full moon in October. As for other kinds, do not know their habits; am not very well informed on the subject.
- Geo. Douglas, Snake River. . . . No salmon in any river in this county.



QUESTION No. 2.—*Are the laws regarding the close season and illegal netting and spearing observed?*

NOTE.—For address and districts of Fishery officers *see* answers to Question No. 1.

### QUEBEC.

#### FISHERY OFFICERS.

#### ANSWERS.

Alf. Blais.....	As far as salmon is concerned the laws are observed, but as to trout, the area is so extensive that he could not, without special guardians, answer for illegal fishing during its long close season.
J. F. Picotin.....	Fairly well observed. No spearing.
J. Laberge.....	The close season regulations were fairly well observed. There is no spearing done here.
J. Kelly.....	Well observed.
J. C. Dion.....	Fairly well observed.
J. B. Chevalier.....	Generally observed.
P. E. Luke.....	Very well observed.
P. W. Nagle.....	Yes, strictly observed.
J. Shurtleff.....	In some localities they are not observed, there being no guardians.
A. L. Darche.....	Yes.
J. B. McDonald.....	Fairly well.
V. Veilleux.....	Fairly well.
D. Shooner.....	Fairly well observed.
G. Boisvert.....	Generally well observed.
S. A. Grant.....	Generally well observed.
J. Charbonneau.....	Generally well observed.
Jno. Morris.....	Yes; well observed.
A. Robert.....	Yes.
Jos. Lauzon.....	Yes.
J. Filiatrault.....	Yes; as far as he knows.
R. W. Jones.....	Yes.
J. T. Coghlan.....	Not to the letter of the law.
R. Joynt.....	Yes.
Jos. Marion.....	To his knowledge the laws have been generally observed, but he does not think a couple of visits by the overseer sufficient during the whole close season.

### ONTARIO.

Thos. Keefer.....	No.
Isaac Turner.....	Does not think there are illegalities; could not secure evidence of any.
Robt. Boyter.....	Yes.
F. Prout.....	He thinks so.
R. H. Murray.....	Yes; strictly.
H. McFayden.....	The close season well observed.
J. C. Pollock.....	Yes.
H. W. Ball.....	Close seasons well observed.
H. B. Quarry.....	They are.
C. W. Raymond.....	Yes. There is no spearing in the Chenal Ecarté.
P. McCarron.....	No; not strictly. Very difficult to watch everybody.
T. McQueen.....	The laws regarding close season and illegal netting are invariably well observed. No spearing carried on in his division.

QUESTION No. 2—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

P. McCann .....	The laws are generally well observed. Young farmers are given to spearing as much for amusement as for gain, in the rapids. Occasionally they carry on net fishing, not systematically, but fishing one night at one place and at a different place the next night. It is difficult to secure evidence to convict guilty parties.
Jos. Boismier .....	The laws against illegal netting and spearing are observed in my district.
Wm. Prosser .....	Yes.
David Girardin .....	To the best of his knowledge the close seasons are well observed. No other fishing carried on here except pound-net fishing, as all other fishing would not pay.
Jno. McMichael .....	Yes.
David Sharp .....	They are.
C. W. Evans .....	These laws are fairly well observed.
W. P. Croome .....	Fairly well observed.
Geo. Price .....	The laws are observed.
Fred. Kerr .....	Yes.
Wm. Sargent .....	Fairly well.
Wm. Helliwell .....	Yes.
Chas. Gilchrist .....	The laws respecting close seasons, illegal netting and spearing are observed, except in Rice Lake and tributaries. There is some spearing and shooting the maskinongé going on in the spring, but he watched the poachers so closely that there is not much of it done lately.
W. P. Clarke .....	In the Bay of Quinté the law is very well observed.
Jos. Redmond .....	Close season laws are well observed.
A. D. Sills .....	The law regarding spearing has never been enforced in this division.
R. R. Finkle .....	Yes.
Peter Kiel .....	Laws regarding close seasons and all other fishery regulations are strictly observed.
Thos. Merritt .....	Yes.
N. Acton .....	They are well observed.
Henry Hunt .....	Yes.
T. McGarity .....	In the neighbourhood of Lancaster there has been illegal netting, but have not been able to detect guilty parties.
O. Miron .....	Well observed.
W. W. Boucher .....	Yes ; very well.
John Grant .....	Yes ; when compelled by the law.
J. S. Richardson .....	Yes ; they are very well observed.
Geo. R. Steele .....	The close seasons and other fishery laws are fairly observed. Some cases of violations in close seasons are difficult to detect, owing to the offences being committed at night. There is no spearing carried on.
J. G. Rumsey .....	Netting altogether prohibited. Spearing a difficult matter to contend with, but on the decrease. Close season fairly observed.

QUESTION NO. 2—ONTARIO—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

H. W. Gill.....	Latterly the laws have been generally observed. Illegal netting and spearing are still occasionally carried on, but the offenders are very hard to convict owing to the unwillingness of neighbours to lay any information or give evidence.
Henry Castle.....	Yes.
L. S. Sanders.....	Yes; they are well observed.
A. Hughson.....	The close season is pretty well observed. At some lakes ice is taken for summer use, and it is difficult to prevent parties from fishing at such times. It would take a guardian at this lake all the time.
N. Simmons.....	The law has been better observed this last season than I have ever known it to be before. No spearing done to his knowledge.
G. W. Fitzgerald.....	I have had trouble in the Stony Lake with illegal netting, but getting it stopped; some spearing done in spring.
David Breeze.....	There is a tendency to violate the close seasons in the Otonabee and Indian Rivers, unless they are well guarded.
Wm. Gainsforth.....	Yes.
R. A. Gilbert.....	They are well observed.
Geo. Lake.....	Pretty generally. Some violations.
S. Boddy.....	Yes.
Wm. Hicks.....	The law in my division is being better observed this last season than in the previous one.
Geo. Jeacle.....	They are generally very well observed.
John Murphy.....	As well as possible.
Eph. Deacon.....	They generally are.
A. Wilson.....	The laws regarded in every particular, except spearing in spring when river overflows.
R. O. Campbell.....	My district is watched closely by day and night. Have not seen nor learned of any illegal fishing.
Geo. Russell.....	Not very well.
M. L. Russell.....	Yes.
H. Gallagher.....	No. Fish are more plentiful in those waters now than they have been for a long time.
Geo. Douglas.....	The laws are regarded as close as possible during close season.

QUESTION NO. 3.—*Are the dams across streams frequented by fish, provided with fish-ways or passes, according to law? If not, state the localities and name of delinquent mill-owners; and suggest, if you can, any improvements in the fish-ways or passes in use.*

## QUEBEC.

Alf. Blais.....	There is no fish-way in Belisle's dam, but it is considered as a protection to salmon rather than a nuisance, in preventing it from being destroyed further up. A special guardian is kept at the said dam by Lord Mount Stephen.
J. Laberge.....	The following dams are still unprovided with fish-ways:—Gilbie's at Howick; Lemieux's at Aubry; Leclair's at St. Chrysostôme; Brown's of the same place; Coupal's, Corbin's, Anderson's, and Curran's, all at Corbin.

QUESTION No. 3—QUEBEC—*Continued.*

FISHERY OFFICERS.

ANSWERS.

J. F. Picotin.....	Only on the River Nicolet, where a few are still in operation. As to the names of the mill-owners, would have to visit the locality again, owing to the property changing owners frequently.
J. Kelly.....	Dams and fish-ways kept in good order.
J. O. Dion.....	At St. Ours tannery a new pass is required to enable the fish to go through during low water. The mill above Ruisseau Massé has no pass, the water being all required to operate the machinery of the mill. I would suggest a clause in the law that would compel the parties interested to construct these passes according to the views of the department.
J. B. Chevalier.....	Lacolle River is completely barred by a dam, in which there is no pass, and one should be made.
P. E. Luke.....	There are three dams unprovided with fish-passes—one owned by the Eastern Townships Bank at Bedford, another by Mrs. DesRivières of Malmaison, and the last by the Pike River Mill Co., of St. Charles de Stanbridge.
P. W. Nagle.....	Yes.
J. Shurtleff.....	In some localities they are not as they should be—Salmon Rivers Nos. 1 and 2, Coaticook, Salmon River at Scotstown, P.Q. The mill-owners are Parker & Genks, Glasgow and Canadian Land and Trust Co., and Scotstown Pulp Co. There are no fish-ways in Salmon River No. 2. The mill-owners are Richard Palister, Geo. Cleveland, Cass Bros., and P. Gosselin. In Moes River there are no fish-ways.
A. L. Darche.....	Yes.
J. B. McDonald.....	Yes.
V. Veilleux.....	Yes.
D. Shooner.....	Yes.
G. Boisvert.....	Yes.
S. A. Grant.....	None required.
J. Charbonneau.....	There are a number without fish-ways, and it is better to wait until the fish increase before building them.
Jno. Morris.....	None.
A. Robert.....	No dams.
J. Lauzon.....	Yes; with one exception, and this is owned by Meunier & Brother.
J. Filiatrault.....	None.
R. Jones.....	No; the mill-owners are Hugh Walsh, Earls Bros., Ireland & Bannerman and James Fish. There are also some small streams with mills and dams, but no passes.
R. Joynt.....	None.
Jos. Marion.....	The Government dam at Grenville is still unprovided with fish-pass. Fishermen complain that the fish cannot ascend.
J. T. Coghlan.....	No obstructions on these streams to prevent the fish ascending.



QUESTION No. 3—*Continued.*

## ONTARIO.

## FISHERY OFFICERS.

## ANSWERS.

Thos. Keefer .....	A dam at head of Carp River, which is frequented by fish, is unprovided with fish-way. It is owned by the Ontario Bank.
Isaac Turner .....	No dams.
Robt. Boyter .....	There are fish-passes in dams at Striggly Bay, but none in R. W. Mutchmore's dam at Providence Bay, nor in the Michael's Bay Co.'s mill-dam.
F. Prout .....	No dams at all.
R. H. Murray .....	Hears no complaints of any kind.
H. McFayden .....	Two dams, whose fish-ways were swept away by freshets, will be replaced during low water. There are falls as high as 70 feet, which fish could not ascend.
J. C. Pollock .....	Not any.
H. W. Ball .....	A dam at Auburn is still unprovided with fish-ways. The owner's name is Mr. Webb.
H. B. Quarry .....	None.
C. W. Raymond .....	There are no dams on the Chenal Ecarté.
P. McCarron .....	Don't know of any dams.
T. McQueen .....	There are no dams across streams frequented by fish in my division. The mill-owners invariably observe the laws respecting inland fisheries.
P. McCann .....	Yes; the dams in the county of Middlesex are all provided with excellent fish-ways. I have observed that pickerel are a "ground fish," and very little will obstruct them in their course. In my judgment, fish-ways on streams where pickerel run should be carried clear to the bottom of the river, then the current of water would, when passing through the fish-ways, attract the pickerel and larger numbers would ascend the streams.
Jos. Boismier .....	There are no dams. All fish have free passage in rivers and streams in my district.
Wm. Prosser .....	None.
David Girardin .....	I don't know of any.
John McMichael .....	There are two dams unprovided with fish-ways, but, in his opinion, they do not require any, and he has so reported to the department.
David Sharp .....	There are no fish-ways in my district, and I do not consider they are needed.
C. W. Evans .....	Yes.
W. P. Croome .....	The dams are provided with fish-ways, excepting the dam at Brantford, owned by Mr. A. Watts; and the one at Galt, the owners of which have been given until next season by the department to build a new fish-way. The fish-ways work well that we have, when built sufficiently strong to stand the ice.
Fred. Kerr .....	Yes; except at the Government dam at Dunnville, Grand River, where a proper fish-way is badly required. The one that exists at present is insufficient and useless, as I consider it not constructed in the right place, and I understand no fish has been observed ascending said slide since its construction.

QUESTION No. 3—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

Wm. Sargent .....	All but one, in Sixteen-Mile Creek, at Isaac Worcup's mill in Oakville.
Wm. Helliwell.....	There are no passes or fish-ways on any of the streams, and he does not think any are needed.
Chas. Gilchrist.....	There are no fish coming up the streams in my division fronting on the counties of Northumberland and Durham that require fish-ways. Such fish as pike and bull-heads do not ascend the streams any distance, but deposit their eggs in the marshes. The maskinongé and bass ascend the Trent River as far as Hastings, where there is a Government dam unprovided with fish-way; and the maskinongé and bass ascend the Otonabee River as far as the locks and Government dam, and no fish-way there either.
W. P. Clarke .....	There are no dams in my district, as it includes no rivers.
Jos. Redmond.....	None in this division.
A. D. Sills.....	There are no dams needing fish-ways in this division.
R. R. Finkle.....	None in my district.
Peter Kiel.....	There are no streams or water mills.
Thos. Merritt.....	There are no dams in my division.
N. Acton.....	There are two dams on the Gananoque River without fish-ways, but they are both at falls of say 9 or 10 feet; fish-ways on these would be useless.
Henry Hunt.....	No rivers or dams.
T. McGarity.....	Fish-ways at Martintown and Williamstown on the Rivière aux Raisins were built last fall.
P. St. Pierre.....	Carillon dam, blocking the River Ottawa altogether, has no fish-way.
O. Miron.....	Well provided with fish-ways.
W. W. Boucher .....	There is a dam across Carp River, situated about three miles from its mouth, which is not provided with fish-passes; mill-owner's name is T. J. Owens, township Fitzroy.
John Grant.....	Yes; except where Government slide dams exist.
J. S. Richardson.....	There are no fish-ways or dams in my district.
Geo. R. Steele.....	There are no fish-ways in this district. Notices have been served on the Parry Sound Lumber Co. and the Parry Sound River Improvement Co., respectively, to construct fish-ways in certain dams on the Seguin River, and upon Messrs. S. & J. Armstrong, of McKellar, to construct a fish-way in their dam at the outlet of Owl Lake.
J. G. Rumsey.....	No; none in use. Have instructions to have a fish-way put in at Burk's Falls, on the Maganatewan River, so soon as water permits.
H. W. Gill.....	None.
Henry Castle.....	None.
L. S. Sanders.....	All streams in my district are on the level, not requiring fish-ways.
A. Hughson.....	The dams are all visited by fish and are provided with fish-ways. There are no fish-ways on the Humber River, nor on the Nottawa River. All the dams would require fish-passes.

QUESTION NO. 3—ONTARIO—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

- N. Simmons..... All the dams are provided with passes but two; one at Miller's & Co., and the other is at Chisholm's Rapids. If these two were built the whole river from Trenton up would be free for the ascent of fish.
- G. W. Fitzgerald..... There is no fish-way in any dam in Peterboro' district. There are five Government dams that should have fish-ways in, namely: Young's, Burleigh, Buckhorn, Lovesick and Bobcaygeon; the last named should be put in at once; one at Omemee, the mill-owner's name is T. Stephenson.
- David Breeze..... No, none in any of the dams; there are eight dams between Rice Lake and Clear Lake on the Otonabee River. I will number them and give the owners, commencing at the lower one: No. 1 is a Government dam, called Loch's dam; Nos. 2, 3 and 4 are owned by the Dixon Co.; No. 5 is owned jointly by the Alburn Woollen Co. and Mr. George Hyland; No. 6 is owned by J. M. Irwin; No. 7 is controlled by the Department of Railways and Canals, and holds back the waters of Katchewanooka Lake; No. 8 is also under same control, and holds back the waters of Clear and Stony Lakes. Would strongly recommend fish-passes to be put in these dams.
- Wm. Gainsforth..... The dams on these lakes should be let down before October to the usual water mark, as when the water is kept up the fish spawn too high, and when the water is let off the spawn is left dry and destroyed.
- R. A. Gilbert..... There are no dams or fish-ways in my district. I would recommend that a fish-way be constructed between upper and lower Trout Lakes, township of Palmerston.
- Geo. Lake..... No; there are no fish-passes in my district; there should be one in the Government dam at the part of Bob's Lake in Bedford, also one in Ezra Thompson's dam at Fish Creek in Bedford, also one in the dam of Wm. Estice at Parham in Hinchinbrook.
- S. Boddy..... No passes according to law; no fish-way between upper and lower Beverly Lake. The department has been consulted about the fish-passes. Mill-owner, Mawford Denault, Delta P.O.
- Wm. Hicks..... There is no fish-way at the outlet of Charleston Lake where there ought to be one, as there has been a deal of contention about it, some practical man should examine it and decide the matter.
- Geo. Jeacle..... At the foot of Wolf Lake, where the fish-pass was; mill burnt down, and nothing but Government dam there now.
- John Murphy..... Only one has not, viz., Mr. Allan's mill on Grant's Creek; it is better to have none here, as the water becomes low after freshet, fish would be lost in drowned lands.

QUESTION No. 3—ONTARIO—*Continued.*

FISHERY OFFICERS.	ANSWERS.
Eph. Deacon.....	No fish-ways on the streams here; do not believe them necessary.
A. Wilson.....	There are two dams on the Mississippi River that have no fish-ways—one at Galetta, owned by Geo. C. Whyte; the other at Pakenham, owned by C. B. McAllister. Difficult to provide fish-ways.
R. O. Campbell.....	The dams are not provided with fish-ways according to law: 1st. The Government dams on the Rideau are not provided. 2nd. The dams at Manotick and Burritt's Rapids are not so provided, neither are the dams on south branch of Rideau, four in number, viz., two at Kemptville, one owned by Keating & Barns, and one about a mile above owned by Kenedy, one at Oxford Mills owned by McDonald & Co.
Geo. Russell.....	Fishing on Madawaska has so far been kept all right.
M. L. Russell.....	No. Casselford, McLaughlin Bros.; Renfrew, M. L. Russell; Renfrew, John Moran; Douglas, E. G. Malloch; South Shute, Mrs. Bonfield; Eganville, Mrs. Bonfield. There are no fish-passes in the district.
H. Gallagher.....	Any dams here have fish-ways open all times.
Geo. Douglas.....	Yes; all dams are provided with fish-ways in this county. Fish ascend to spawn.

QUESTION No. 4.—*Do you know of any particular river which the fish ascend and where they have been destroyed in consequence of contraventions of the Fishery Laws, and can you suggest any amendment to the laws or recommend any administrative measure in relation thereto?*

QUEBEC.

Alf. Blais.....	No.
J. F. Picotin.....	The appointment of a special guardian at Arthabaskaville is suggested, in order to visit the fish market during the close season.
J. Laberge.....	Formerly that portion of the Châteauguay River above the Nuns' Dam was teeming with all kinds of fish, but sawdust and mill rubbish have considerably injured them.
J. Kelly.....	Recommends that, in all the rivers in this division, when fish come in to spawn, that rod or line fishing be disallowed until after the 15th June, because they kill and destroy bass by catching and bagging them.
J. O. Dion.....	Municipalities keeping roads forming basins or ponds should have openings to allow the fish and fry to escape when the water gets low.
J. B. Chevalier.....	No.



QUESTION No. 4—QUEBEC—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

P. E. Luke.....	No personal knowledge of any.
P. W. Nagle.....	No.
A. L. Darche.....	No.
J. B. McDonald.....	Considerable damage was done in the Arnold and Victoria rivers by lumbering companies when blasting rock with dynamite, at a time when the fish were spawning. There is nothing in the law to prevent this.
V. Veilleux.....	No.
D. Shooner.....	No.
G. Boisvert.....	No.
S. A. Grant.....	The St. Maurice River is the only one fish ascend for spawning; none are destroyed.
J. Charbonneau.....	Above Farnham the inhabitants, who are in the habit of spearing, seining and shooting the fish, are causing the decrease of fish in the river.
John Morris.....	Do not know of any.
A. Robert.....	No.
J. Lauzon.....	No.
J. Filiatrault.....	No.
R. W. Jones.....	In the North River fish have become very scarce. Some of the dams have a fall of about 15 to 20 feet.
R. Joynt.....	None.
Jos. Marion.....	In nearly all streams named in Answer No. 1, fish ascend to the foot of the rapids to spawn, and there it is alleged illegalities are committed. Overseer should be authorized to appoint local guardians on the spot.
J. T. Coghlan.....	In Calumet Creek, a great quantity of carp are destroyed yearly, and also a small percentage of pike, pickerel and bass.

## ONTARIO.

Thos. Keefer.....	Current River and Vicar's Creek have been injured by illegal fishing. Netting without license is reported in all rivers. The use of a tug with patrol service is the best way he can suggest to check the evil.
Isaac Turner.....	Whitefish River.—The present laws are sufficient if properly enforced.
Robert Boyter.....	The streams before mentioned should be provided with passes and mill rubbish kept from them.
F. Prout.....	Do not know of any.
R. H. Murray.....	None.
H. McFayden.....	None.
J. C. Pollock.....	No.
H. W. Ball.....	Reports of netting coarse fish without license have reached him, but he could never obtain evidence to convict. Recommend that overseers should have authority to hire temporary guardians in cases of emergency without first obtaining permission from Department.

QUESTION No. 4—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

H. B. Quarry.....	Bass have been destroyed in Aux Sables River. A guardian should visit it during close season for bass.
C. W. Raymond.....	No.
P. McCarron.....	Parties complained of injury done to fish by oil refiners in Petrolia, allowing refuse from the refineries to run into the river at that point, claiming that the refuse is injurious to fish life.
T. McQueen.....	Pickarel, pike and mullet ascend the Thames River in large quantities from 15th April to 15th May for the purpose of depositing their spawn generally where the waters of the Thames are shallow and clear; supposed to be at or near Cashmere, in the County of Bothwell.
P. McCann.....	None to my knowledge. I think the existing laws, if carried out, are sufficient.
Jos. Boismier.....	No river that I am aware of, where fish are destroyed.
Wm. Prosser.....	None.
David Girardin.....	I don't know of any.
John McMichael.....	No.
David Sharp.....	I believe there has been fish taken at Big Creek, but not to any great extent.
C. W. Evans.....	No. I have no suggestion to make in this respect.
W. P. Croome.....	I do not know of any.
Fred. Kerr.....	No.
Wm. Sargent.....	No.
Wm. Helliwell.....	I would recommend a close season be established for suckers and pike in the month of April in all streams.
Chas. Gilchrist.....	The Otonabee River has been completely ruined by the mill-owners at Peterboro' allowing sawdust and mill rubbish to drift into it for a great number of years. The spawning beds all through the drowned lands where the fish deposited their eggs are covered with sawdust. Fishing some years ago was good, but now it is very poor. The mill-owners do not now allow but a very little sawdust into the river.
W. P. Clarke.....	I do not know of any.
Jos. Redmond.....	Do not know of any.
A. D. Sills.....	No.
R. R. Finkle.....	None in my district.
Peter Kiel.....	There is no river but the St. Lawrence in this part of the country, and the fish inhabiting it, are not destroyed by illegal fishing.
Thos. Merritt.....	None.
N. Acton.....	I do not know of any.
Henry Hunt.....	None.
T. McGarrity.....	No, I do not know of any.
P. St. Pierre.....	No.
O. Miron.....	No.
W. W. Boucher.....	No.

QUESTION No. 4—ONTARIO—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

- John Grant..... I am not aware of any.
- J. S. Richardson..... The large district between Spanish River and French River has numerous streams and small lakes from 100 to 150 miles back north from Georgian Bay which flow therein, and these waters are the breeding grounds supplying the said Bay with a great quantity of fish, which find their way up these waters to spawn. The lumbermen have a great many of these lakes and streams dammed in order to float their logs conveniently in the spring. Wherever a permanent dam is made they should be compelled to put in a fish-way, or the supply of fish in the Georgian Bay will soon diminish. I think if a suitable patrol was appointed to keep these streams open and look after the mills that are springing up in that unorganized district it would be a great benefit to the fishing interests.
- Geo. R. Steele..... Yes. At the outlet of the Seguin River, at the outlet of Mill Lake, and at the outlet of Manitawaba Lake, through want of proper fish-ways. Would respectfully recommend that the law as regards the construction of fish-ways be strictly enforced.
- J. G. Rumsey..... No.
- H. W. Gill..... There is a stream at the head of Three-Mile Lake, where fish ascend to spawn, which in the past has been visited by parties who have caught these fish in large quantities. Last spring I paid particular attention to this stream, and was enabled with some help to prevent this nefarious work being carried on, as this is one of the most important seasons of the year. I would suggest that a special guardian be employed at this point for one month (from 15th April to 15th May) in each year.
- Henry Castle..... No.
- L. S. Sanders..... No.
- A. Hughson..... The dams having no fish-passes, no fish can ascend, though large numbers attempt to get up the streams. Clubs for the purpose of protecting different lakes and ponds complain that when the fish descend they cannot get back for want of fish-ways. Said clubs are purchasing speckled-trout fry for these different waters.
- N. Simmons..... I do not think that there is any river, creek or inlet in my division where the fish have been destroyed.
- G. W. Fitzgerald..... Pigeon Creek. By appointing a guardian.
- David Breeze..... Would recommend an occasional patrol of the Indian River. I have been informed that there was a large amount of fish speared on that river last season.
- Wm. Gainsforth..... No.

QUESTION No. 4—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

R. A. Gilbert.....	I do not. The last Order in Council respecting the close season for salmon-trout and whitefish, enlarged from 15th October to 30th November, I hope will be retained. I strongly condemn the use of night-lines for catching trout.
Geo. Lake .....	None in my division that I am aware of.
S. Boddy .....	No.
Wm. Hicks .....	None.
Geo. Jeacle.....	No. Only at Westport's lower mill. Sucker run so soon as ice breaks up. Very few go through fish-slide; remain in current; and many caught by residents with dip-nets for home use, fresh.
John Murphy .....	No.
Eph. Deacon.....	Am not aware of any.
A. Wilson .....	I know no river where fish are destroyed contrary to law. Nothing to suggest.
R. O. Campbell.....	I do not know of any such rivers.
Geo. Russell.....	None.
M. L. Russell.....	In our waters, fish formerly ascended from Ottawa River, but since dams were built they have not been able to do so, as none of them are provided with passes.
H. Gallagher .....	I do not know anything outside of my district.
Geo. Douglas.....	I do not know any place where fish are destroyed except at Olmstead's Lakes.

QUESTION No. 5.—*Are you aware of any important district where a more regular inspection is required in order to prevent contraventions of the Fishery Laws which now occur? State the results of such contraventions as regards the fisheries in general.*

QUEBEC.

Alf. Blais.....	All lakes should be visited sharply at the forming of the ice, and the law should be strictly enforced. The lakes of his district are: Angers, Pitre, Otter Brook, Causapscau and Little Matane.
J. F. Picotin.....	In my opinion the following fishery districts, viz., Three Rivers, Richelieu, Yamaska, Arthabaska and Drummond should be on the same footing, the fishery overseers should meet and adopt a uniform rule.
J. Laberge.....	After efficient fish-passes are built where prescribed he suggests the employment of temporary guardians at suitable localities.
J. Kelly.....	I believe the present laws are satisfactory.
J. O. Dion.....	Nil.
J. B. Chevalier.....	It would require a more regular inspection in my district, on account of the American citizens being so close to the boundary and South River, in which fishing is prohibited; parties fishing in this river and other forbidden places should be prosecuted.
P. E. Luke.....	I am not aware of any.



QUESTION No. 5—QUEBEC—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

P. W. Nagle.....	No.
J. Shurtleff.....	Yes; a guardian should be appointed at the inlet and outlet of Massawippi Lake. Being frequently informed of illegal fishing being carried on there, he made several trips to the lake and destroyed nets and night lines.
A. L. Darche.....	None, except as regards sawdust.
J. B. McDonald.....	None.
V. Veilleux.....	The lakes in St. Victor de Tring, where fry has been deposited.
D. Shooner.....	Yes, from the foot of Lake St. Peter to Three Rivers. Seine fishing should be prohibited.
G. Boisvert.....	No.
S. A. Grant.....	Not at present.
J. Charbonneau.....	Only the district mentioned in Answer No. 4.
John Morris.....	None at present.
A. Robert.....	No.
J. Lauzon.....	No.
J. Filiatrault.....	No.
R. Jones.....	No.
Robt. Joynt.....	None.
Jos. Marion.....	Numerous lakes in the county of Ottawa are not guarded, and no doubt some fishing is carried on during close season.
J. T. Coghlan.....	Nil.

## ONTARIO.

Thos. Keefer.....	The whole lake requires watching; illegal fishing may be carried on at any time anywhere a chance occurs. Net fishing without license creates dissatisfaction among the licensees, and incites them to follow the bad example. Fishing grounds are also polluted by fish offal thrown in secretly.
Isaac Turner.....	From Sagamok to Whitefish River. Trap-nets were used, and close season has not been observed.
Robt. Boyter.....	Yes.
F. Prout.....	Algoma Mills and Spanish River.
R. H. Murray.....	No.
H. McFayden.....	Not aware of any.
J. C. Pollock.....	No.
H. W. Ball.....	Fishery officers should be compelled to devote their whole time to inspection during the fishing season.
H. B. Quarry.....	Aux Sables River should be more closely attended to during close season for bass.
C. W. Raymond.....	No.
P. McCarron.....	Don't know of any such district.
T. McQueen.....	I am not aware of any important district where a more regular inspection is required to prevent illegal fishing.
P. McCann.....	No.
Jos. Boismier.....	I am not aware of any district where a more regular inspection is required.
Wm. Prosser.....	No.

QUESTION NO. 5—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

David Girardin .....	I don't know of any district where a more regular inspection is required.
Jno. McMichael.....	I am not aware of any.
David Sharp.....	None, except Long Point. I believe American fishermen frequent the south shore of Long Point and take fish illegally.
C. W. Evans.....	Yes; the close season for whitefish is not at all observed by some parties along Lake Erie shore in this county.
W. P. Croome.....	I am not aware of any district being especially noted for infringing upon the Fishery Act. The great trouble in this district is illegal angling during the close season.
Fred. Kerr.....	None, except along the shores of Lake Erie, between Port Maitland and Colchester, where there is a good deal of illegal fishing and illegal shipping of bass and pickerel during the close season for those fish, which contravention requires energetic officers to suppress.
Wm. Sargent.....	No.
Wm. Helliwell.....	No; as there is no prohibitory law at present existing to prevent the destruction of coarse fish.
Chas. Gilchrist.....	I am not aware of any such district.
W. P. Clarke.....	Not aware of any.
Jos. Redmond.....	Not aware of any.
A. D. Sills.....	None, except the various close seasons.
R. R. Finkle.....	No.
Peter Kiel.....	I am not aware that any portion of this district requires any more watchfulness or inspection, as the inhabitants render any assistance required in carrying out the law in its entirety.
Thos. Merritt.....	No.
N. Acton.....	Not aware of any.
Henry Hunt.....	None.
T. McGarity.....	No.
P. St. Pierre.....	No.
O. Miron.....	No.
W. W. Boucher.....	No.
John Grant.....	I think about Mattawa would require a regular inspection to prevent net fishing in summer without license, as some lakes in the vicinity are well stocked with speckled-trout.
Geo. R. Steele.....	Consider that special guardians are required during the close season at Manitawaba Dam and Staley's Creek. This would be during close season for pickerel and bass.
J. G. Rumsey.....	No; spearing is the only trouble, but does not now amount to much. I require no extra help.
H. W. Gill.....	In Skeleton Bay, Lake Rosseau, where the Skeleton River empties, a special guardian is needed.
Henry Castle.....	No.
L. S. Sanders.....	I am not aware of any district where regular inspection is required.

QUESTION No. 5—ONTARIO—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

- A. Hughson..... In the township of Melancthon there ought to be a more strict observance of the fishery laws. This is a very important and one of the best speckled-trout resorts in Ontario. I have been there often, and find the laws ignored. It has no guardian to look after the fish and those who wish to fish out of season. This place might advantageously be added to my division. I would see to it.
- N. Simmons..... I think, on the whole, the fishery laws are being better observed every year, as the people are finding out that it is for their own benefit that these laws are carried out and enforced.
- G. W. Fitzgerald..... In the north part of East Peterboro' county, Katchewanogobog Lake, Round Lake, head of Moir River. Netting and spearing in close season for salmon-trout.
- David Breeze..... Indian River, especially at the village of Wasaw and Quarrey and White Lakes.
- Wm. Gainsforth..... No.
- R. A. Gilbert..... None that I know of.
- Geo. Lake..... I don't know of any as the present overseers look after the interest of the fishery laws.
- S. Boddy..... No.
- Geo. Jeacle..... Yes; the lower Rideau. A guardian is great benefit when salmon-trout is depositing spawn. Other parts of division laws are generally well observed.
- John Murphy..... The season for salmon-trout is a little late. It should begin about 8th October.
- Eph. Deacon..... Am not aware of any in this county.
- A. Wilson..... Mississippi and Carp Rivers not protected. I could look after them without additional expense. The only violations on above streams is spearing in spring.
- R. O. Campbell..... I am not aware of any such.
- Geo. Russell..... No.
- M. L. Russell..... No; none that I know of.
- H. Gallagher..... Think this fully answers above as far as can from common reports.
- G. Douglas..... Yes, Olmstead Lakes, township of Ross, requires closer inspection.

QUESTION No. 6.—*How much fish is consumed in the neighbourhood of the fishing grounds by the inhabitants, and what quantities are sold in a fresh state?*

## QUEBEC.

- Alf. Blais..... About 1,000 lbs. of salmon-trout consumed in this district.
- J. F. Picotin..... The fish caught is all sold fresh for local consumption. Valued at about \$600 or \$800.
- J. Laberge..... Between \$2,000 and \$3,000 worth of fish are consumed in this division, and about \$20,000 worth sold on the Montreal markets.

QUESTION No. 6—QUEBEC—*Continued.*

FISHERY OFFICERS.	ANSWERS.
J. Kelly.....	About 1,000 lbs. used for home consumption, and 7,000 lbs. sent to Montreal markets; sold from 5 cts. to 10 cts. per lb.
J. O. Dion.....	With the exception of about 22,000 lbs. of eels sold very few fish were disposed of from this district.
J. B. Chevalier.....	Very little consumed in the neighbourhood; mostly all exported to United States, fresh.
P. E. Luke.....	A very small portion consumed in this district; they are shipped in a fresh state.
P. W. Nagle.....	Nearly all consumed in neighbourhood.
J. Shurtleff.....	Nearly all consumed in neighbourhood. None sold in a fresh state.
A. L. Darche.....	Nearly all consumed in neighbourhood. About 3,000 lbs. taken away fresh.
J. B. McDonald.....	About four tons consumed here; 1,500 lbs. sold fresh.
V. Veilleux.....	All consumed here.
D. Shooner.....	From 30,000 to 35,000 lbs. fresh.
G. Boisvert.....	All consumed here; quantity unknown.
S. A. Grant.....	About 6,000 lbs. consumed here, and about the same quantity sold.
Jos. Charbonneau.....	From 25,000 to 30,000 lbs. are consumed here per annum; none exported.
John Morris.....	About one-third consumed here and two-thirds sold.
A. Robert.....	Possibly about 6,000 lbs. of all sorts (salmon excepted) consumed here; none sold in a fresh state.
J. Lauzon.....	About 8,000 lbs. consumed here, and about 10,000 sold in a fresh state.
J. Filiatrault.....	About 6,000 lbs. consumed here, and about 4,000 lbs. sold.
R. Jones.....	Very little consumed here; mostly all shipped in a fresh state to Montreal and Ottawa markets.
R. Joynt.....	All consumed here; none sold.
Jos. Marion.....	Cannot say how much fish the inhabitants consume, but nearly the whole catch is disposed of fresh in local markets.
J. T. Coghlan.....	About three-quarters consumed here and one-quarter sold in a fresh state.

ONTARIO.

Thos. Keefer.....	Home consumption estimated at 80,000 lbs. Nearly the whole catch is sold fresh. The poachers' catch is sometimes salted or smoked.
Isaac Turner.....	Very little marketed here. No fishing station established.
Robt. Boyter.....	Do not know.
F. Prout.....	Do not state the quantities.
R. H. Murray.....	Cannot answer this.
H. McFayden.....	About 40,000 lbs. of speckled-trout consumed for local consumption annually.
J. C. Pollock.....	Fish are all collected by American tugs before they ever land at all, so that the inhabitants can hardly get any fish at all.
H. W. Ball.....	About 200,000 lbs., all fresh fish.



QUESTION No. 6—ONTARIO—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

H. B. Quarry.....	About 28,000 lbs. of fresh fish sold in local markets.
C. W. Raymond.....	Of soft fish, about one-third of the catch.
P. McCarron.....	Only a small quantity consumed while fresh and none sold.
T. McQueen.....	There are 8,247 lbs. of fish consumed in the neighbourhood of fishing grounds. The quantities which are sold in a fresh state are 48,562 lbs. of pickerel, 3,402 lbs. of pike and 102,978 lbs. of coarse fish, which are packed in barrels and sold to purchasers from the United States.
P. McCann.....	About \$2,500 worth of fish disposed of for home consumption only. All the fish caught here are used or sold in the neighbourhood.
Jos. Boismier.....	Fish consumed in the neighbourhood of the fishing grounds are about 9,000 lbs.; the quantities sold in a fresh state are about 225,000 lbs.
Wm. Prosser.....	All sold fresh. The home consumption estimated at about one-tenth of the whole.
David Girardin.....	I suppose there would not be more than 1,000 lbs. of fish consumed in my district. As near as I can estimate, is 655,225.
Jno. McMichael.....	As near as I could ascertain the quantity in pounds used by the inhabitants was 320,004 lbs. and 4,178,674 lbs., all sold in a fresh state.
David Sharp.....	There are very few fish consumed in the immediate vicinity of the fishing grounds, and all caught are sent to market in a fresh state.
C. W. Evans.....	In my district no nets are allowed. Fishing is entirely for sport; cannot, therefore, say what quantity caught. None sold.
W. P. Croome.....	All fish caught in this district are caught by anglers, and by them consumed. None sold.
Fred. Kerr.....	Two-thirds of the fish caught is consumed in the neighbourhood of the various fisheries, especially sold in Toronto and Hamilton, mostly smoked and cured.
Wm. Sargent.....	\$500 worth is consumed by the inhabitants in the neighbourhood; \$5,000 worth are sold in a fresh state.
Wm. Helliwell.....	They are all consumed in the neighbourhood where they are caught, and in Toronto; some being peddled about the country villages.
Chas. Gilchrist.....	There are 10,700 lbs. salmon-trout, 45,000 lbs. ciscoes, 100,000 lbs. maskinongé and 50,000 lbs. bass.
W. P. Clarke.....	It is impossible to state the amount of fish consumed by the inhabitants; probably \$5,000 worth, nearly all fresh.
Jos. Redmond.....	Probably one-sixteenth is consumed in the neighbourhood, but the great bulk is sold in a fresh state.
A. D. Sills.....	All.
R. R. Finkle.....	Consumption probably about 3,000 lbs. All fish caught are sold here in a fresh state to American buyers.

QUESTION No. 6—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

Peter Kiel.....	The fish taken in this locality are generally coarse fish and very few are consumed by the inhabitants, but are sold to Americans in a fresh state.
Thos. Merritt.....	About 20 brls., or 6,000 lbs. of different kinds of fish are consumed by the inhabitants near the different fishing grounds in my division, and about 100 brls., or 30,000 lbs. are sold in a fresh state in the markets and to fish dealers annually.
N. Acton.....	As there is no netting allowed in this division the catch by sportsmen, by anglers, is not sold, but consumed here.
Henry Hunt.....	Not known.
T. McGarity.....	Nearly all caught is used by the inhabitants or is sent to Montreal.
P. St. Pierre.....	About \$1,500, more or less.
O. Miron.....	No fishing ground in my district. None sold for exportation.
W. W. Boucher.....	Two-thirds consumed in the neighbourhood, one-third sold in a fresh state.
John Grant.....	Cannot say the quantity, nearly all consumed in the neighbourhood.
J. S. Richardson.....	Sturgeon Falls—2,000 lbs. sold in a fresh state, 3,000 lbs. consumed by the inhabitants. North Bay—2,500 lbs. sold in a fresh state, 2,500 lbs. consumed by the inhabitants. Callander—1,200 lbs. used by the inhabitants. South River—1,000 lbs. used by the inhabitants.
Geo. R. Steele.....	No fishing carried on in this district for the purpose of barter or sale. Cannot give an accurate estimate of the amount of fish used by inhabitants, in the different localities.
J. G. Rumsey.....	Estimated about 4,500 lbs. salmon-trout. " " 400 " speckled-trout. " " 450 " bass. " " 350 " pickerel.
H. W. Gill.....	Nearly all the fish caught is consumed locally.
Henry Castle.....	Fish are caught here only by angling, and it is impossible to approximate the quantity.
L. S. Sanders.....	I have no means of knowing what quantity of fish are consumed by the inhabitants around Lake Simcoe. I am not aware as to quantity sold, if any, as Lake Simcoe has been set apart for some six years for propagation purposes. We get all of our fresh fish from the Georgian Bay <i>via</i> Collingwood.
A. Hughson.....	Only speckled-trout are caught in my division, and they are consumed by the inhabitants. Many excursionists come here to fish and purchase a quantity of fish to take home. Some visitors remain part of the summer on these waters and destroy a good deal of our fishing.
N. Simmons.....	All the fish caught in my division is consumed by the inhabitants as there is only hook and line fishing allowed. Sometimes in winter there are a few shipped caught through the ice. One of the principal fishermen said the quantity sent away would not exceed 2,000 lbs., in the season.

QUESTION NO. 6—ONTARIO—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

G. W. Fitzgerald.....	There are large quantities consumed by the settlers, the rest is sold to towns and villages in the neighbourhood.
David Breeze.....	There is quite a few caught by sports and settlers for their own use, say about 2,000 lbs. Dealers handle for home consumption from 45,000 to 50,000 lbs.
Wm. Gainsforth.....	About 1,000 lbs. used. None sold.
R. A. Gilbert.....	9,650 lbs.; about 5,000 lbs. sold to shanties and villages.
Geo. Lake.....	I should judge about 2,000 lbs. None sold.
S. Boddy.....	About 4 tons bull-pouts, in fresh state.
Wm. Hicks.....	I do not know, there being no regular fishing business done in this section of country.
Geo. Jeacle.....	I do not—but all are sold fresh.
John Murphy.....	The inhabitants catch a deal with hook and line; there is a little netting in spite of all we can do; I should judge 3,000 lbs. are caught with hook and line.
Eph. Deacon.....	All fish caught are consumed in neighbourhood; none exported.
A. Wilson.....	Safe in saying 1,500 lbs. consumed by inhabitants, 600 lbs. sold.
R. O. Campbell.....	Fishing grounds extend from one end of river to the other; most of fish caught consumed by inhabitants; quantity about 6,000 lbs
Geo. Russell.....	10,700; 1,500.
M. L. Russell.....	All that are caught; only a few in the neighbouring villages.
H. Gallagher.....	I don't think there is much in my district except what is caught for home use.
Geo. Douglas.....	Very little consumed in neighbourhood by inhabitants; none sold to my knowledge.

QUESTION NO. 7.—*What quantities of salmon and other fish taken in your county are exported, with the quantities exported in a fresh state packed in ice or snow or in hermetically-sealed cans, and to what markets sent respectively?*

## QUEBEC.

Alf. Blais.....	About 8,000 lbs. of salmon exported fresh in ice.
J. F. Picotin.....	Fishermen are of opinion that salmon in this place can only be procured by spearing, but this is prohibited; no other kinds of fish are exported.
J. Laberge.....	Montreal is the chief market for this division; no fish exported direct from this district.
J. Kelly.....	None.
J. O. Dion.....	There are no canneries; no fish exported.
J. B. Chevalier.....	No salmon in my district. About 700 or 800 brls. fresh fish are sent to United States packed in ice. There are no canneries.
P. E. Luke.....	About nine-tenths of the quantity caught are exported in a fresh state packed in ice to New York market.

QUESTION NO. 7—QUEBEC—*Continued.*

FISHERY OFFICERS.

ANSWERS.

P. W. Nagle	None exported.
J. Shurtleff	None exported.
A. L. Darche	None.
J. B. McDonald	None.
V. Veilleux	None.
D. Shooner	No salmon. 5,000 lbs. of fish packed in ice sent to United States market, 30,000 lbs. sent to Montreal, Quebec and Three Rivers.
G. Boisvert	None.
S. A. Grant	Not aware of any exported.
Jos. Charbonneau	Many families pickle a few barrels for their own use.
Jno. Morris	None.
A. Robert	No salmon.
J. Filiatrault	Trout is sold in a frozen state.
R. Jones	None.
R. Joynt	None.
Jos. Marion	Has no knowledge of any fish having been exported from his division.
J. T. Coghlan	No salmon in waters under his control.

ONTARIO.

Thos. Keefer	The largest quantity of the yield is exported from Port Arthur and Sault Ste. Marie to United States markets in fresh state.
J. Turner	About 5 tons in ice.
Robt. Boyter	Buffalo is the principal market; fish are shipped there packed in ice.
F. Prout	Not given.
R. H. Murray	None.
H. McFayden	About 20,000 lbs. of trout exported to United States, packed in ice, every year.
J. C. Pollock	All, except a few herrings.
H. W. Ball	About 800,000 lbs. of trout, whitefish, sturgeon and pickerel, mostly all shipped to the Buffalo Fish Co., fresh in ice.
H. B. Quarry	About 93,000 lbs. of pickerel and sturgeon were exported fresh to Buffalo, Detroit and Port Huron.
C. W. Raymond	None.
P. McCarron	None exported.
T. McQueen	None taken, and consequently none packed in ice or snow.
P. McCann	None.
Jos. Boismier	All fish caught in this district are shipped fresh to the American market; quantities shipped are about 200,000 lbs.
Wm. Prosser	All fish exported fresh.
Jno. McMichael	None.
David Sharp	The larger portion of the fish caught in this county is exported to the United States in a fresh state packed in ice; principally consigned to Buffalo, N.Y.
C. W. Evans	None from this district; fishermen along Lake Erie in this county ship large quantities of herring and other fish to Buffalo and Canadian towns.



QUESTION No. 7—ONTARIO—*Continued.*

FISHERY OFFICERS.	ANSWERS.
W. P. Croome.....	Not any.
Fred Kerr.....	One-third of the fish caught is exported to Buffalo in a fresh state packed in ice.
Wm. Sargent.....	The principal export is of ciscoes, fresh and cured, none packed in ice or snow and none canned. Markets, Toronto and Montreal, east, and region of London West.
Wm. Helliwell.....	None.
Chas. Gilchrist.....	There are 150,000 lbs. of pike and bull-heads packed in ice and shipped to the United States.
W. P. Clarke.....	Whitefish about 80,000 lbs.; bass about 2,500 lbs.; pickerel, 26,500 lbs.; pike about 23,000 lbs.; eels, 3,550 lbs.; bull-heads, 125,000 lbs.; all packed in ice and exported to the United States; Cape Vincent and Buffalo are the chief markets.
Jos. Redmond.....	About one-half of the salmon-trout is exported in a fresh state,
J. D. Sills.....	No dried or pickled fish.
R. R. Finkle.....	Fish caught last season and packed in ice and shipped to American market as follows:—Salmon-trout, 6,000 lbs.; whitefish, 125,000 lbs.; bass, 6,500 lbs.; pickerel, 30,000 lbs., and about 6,000 herring; more packed in cans.
Peter Kiel.....	The principal fish taken are bull-heads, catfish and eels, which are sold fresh to the Americans.
Thos. Merritt.....	None.
N. Acton.....	The majority of fish is taken by American sportsmen, fishing in our waters all day and returning to their side at night.
Henry Hunt.....	Not known.
T. McGarity.....	Nil.
P. St. Pierre.....	None.
O. Miron.....	None.
W. W. Boucher.....	None.
John Grant.....	None exported that I am aware of.
J. S. Richardson.....	About 166,500 lbs. shipped in ice until the lake freezes, and then shipped frozen; shipped chiefly to Montreal, Brockville, Kingston and Toronto.
Geo. R. Steele.....	No fish exported from this division.
J. G. Rumsey.....	None.
H. W. Gill.....	None of any account; a small number may occasionally have been sent as a gift.
Henry Castle.....	None.
L. S. Sanders.....	None that I have heard of.
A. Hughson.....	There is no salmon-trout in any of the rivers in my division except the River Credit, and none are exported.
N. Simmons.....	None exported with the exception of that answered in question 6, and the fish caught in winter are maskinongé, pickerel and pike, principally the latter.
G. W. Fitzgerald.....	None
David Breezé.....	None. All consumed in this district.
Wm. Gainsforth.....	None.
R. A. Gilbert.....	None, owing to licenses not being issued.

QUESTION No. 7—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

Geo. Lake.....	None exported.
S. Boddy .....	None.
Wm. Hicks .....	There is a quantity of bull-heads taken in this county, but I have no means of knowing to what extent. They are crossed over from Kingston to Cape Vincent on the other side.
Geo. Jeacle.....	No salmon-trout nor bass exported. American sportsmen may take a few when going home; coarse fish exported to United States in fresh state; some from here sent in sealed cans.
John Murphy .....	None.
Eph. Deacon .....	None.
A. Wilson .....	None.
R. O. Campbell.....	None exported in my district.
Geo. Russell .....	None.
M. L. Russell .....	None.
H. Gallagher.....	None that I know of.
Geo. Douglas.....	No fish exported to my knowledge in ice or sealed cans.

QUESTION No. 8.—*How much of dried or pickled fish, the product of your river fisheries, is consumed in Canada, and what quantities and kinds are exported to foreign countries, and to what countries?*

QUEBEC.

Alf. Blais.....	None.
J. F. Picotin .....	None.
J. Laberge .....	None exported direct from here.
J. Kelly.....	None packed here, or exported to foreign countries.
J. O. Dion.....	The fish are generally sold fresh. Very few can catch enough to pickle for their own use.
J. B. Chevalier .....	None.
P. E. Luke .....	No dried or salted fish, all disposed fresh.
P. W. Nagle .....	None exported to foreign countries.
J. Shurtleff.....	None.
A. L. Darche.....	None.
J. B. McDonald.....	None.
V. Veilleux.....	None.
D. Shooner .....	3,000 lbs. smoked eels to Montreal; and 4,000 lbs. pickled sent to Montreal and Quebec.
J. Boisvert .....	None.
S. A. Grant.....	None.
J. Charbonneau .....	Nil.
Jno. Morris.....	Eels are the only kind salted for use in the locality.
A. Robert.....	None.
Jos. Lauzon.....	None.
J. Filiatrault.....	None.
R. Jones .....	Very little. None exported.
R. Joynt .....	No river fisheries in my district.
Jos. Marion.....	All fish caught in his division was sold fresh in Canada.
J. T. Coghlan .....	All consumed in Canada.

QUESTION No. 8—*Continued.*

## ONTARIO.

## FISHERY OFFICERS.

## ANSWERS.

Thos. Keefer .....	It is not stated how the Canadian buyers of fish disposed of them, but nearly all salted salmon-trout and whitefish (about 1,800 barrels) are exported to American markets.
Isaac Turner .....	No record.
Robt. Boyter .....	None.
F. Prout .....	Cannot answer this question now.
R. H. Murray .....	None.
H. McFayden .....	There is no pickled fish in his district.
J. C. Pollock .....	None.
H. W. Ball .....	All fish disposed of in fresh state.
H. B. Quarry .....	None.
C. W. Raymond .....	None.
P. McCarron .....	None.
S. McQueen .....	None dried or pickled in my division, and consequently none exported to foreign countries.
P. McCann .....	None.
Jos. Boismier .....	No dried or pickled fish here cured.
Wm. Prosser .....	Only one establishment in my division where smoked fish is cured; it does not do more than one-twentieth of the product.
Jno. McMichael .....	None.
David Sharp .....	None caught in rivers.
C. W. Evans .....	No such industry carried on here.
W. P. Croome .....	Not any.
Fred Kerr .....	None.
Wm. Sargent .....	No dried or pickled fish.
Wm. Helliwell .....	All. None.
Chas. Gilchrist .....	No dried or pickled fish in my division.
W. P. Clarke .....	There are about 80 brls. of whitefish and 560 brls. of herring, product of my district, consumed in Canada; no pickled fish exported from this district.
Jos. Redmond .....	None.
A. D. Sills .....	No dried or pickled fish.
R. R. Finkle .....	None.
Peter Kiel .....	There are no fish dried, and but few pickled in this district; the local markets are supplied from the Gulf of St. Lawrence.
Thos. Merritt .....	None.
N. Acton .....	None, as there is no netting.
Henry Hunt .....	Not known.
T. McGarity .....	Nil.
P. St. Pierre .....	None.
O. Miron .....	None.
W. W. Boucher .....	All are consumed in Canada.
John Grant .....	It is all consumed in Canada; none exported to foreign countries.
Geo. R. Steele .....	None, only what is used by settlers in the district.
J. G. Rumsey .....	None.
H. W. Gill .....	Only consumed locally.
Henry Castle .....	None.
L. S. Sanders .....	None.
A. Hughson .....	None.

QUESTION No. 8—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

N. Simmons.....	I don't think that any are dried, and none are exported, as all are used as caught, fresh.
G. W. Fitzgerald.....	There is none exported.
David Breeze.....	None.
Wm. Gainsforth.....	None.
R. A. Gilbert.....	None.
Geo. Lake.....	None.
S. Boddy.....	Do not know.
Wm. Hicks.....	Do not know.
Geo. Jeacle.....	I do not know; chiefly bull-heads and eels exported to United States.
John Murphy.....	None pickled unless for home consumption.
Eph. Deacon.....	None.
A. Wilson.....	I know none dried, but inhabitants occasionally salt catfish and suckers when caught in large quantities for their own use.
R. O. Campbell.....	No fish dried or pickled, and none exported.
Geo. Russell.....	None.
M. L. Russell.....	Perhaps twenty barrels by residents. None.
H. Gallagher.....	Does not apply here.
Geo. Douglas.....	None consumed or exported to other countries.

QUESTION No. 9.—*State the prices of the different kinds and qualities of fish at or near the fishing grounds, when prepared for exportation and when delivered in the market respectively.*

QUEBEC.

Alf. Blais.....	Frozen trout, 10 cts. per lb., fresh at 8 cts.
J. F. Picotin.....	Pickarel is sold on our home markets for 7 or 8 cts. per lb.; coarse fish, 3 to 5 cts. per lb.
J. Laberge.....	Fish is not cured in his district, but mostly disposed of fresh in strings of fish on the Montreal markets.
J. Kelly.....	Bass, maskinongé and pickarel are generally sold at 10 cts. per lb., soft fish at 5 cts. per lb.; all shipped to Montreal markets once a week.
J. O. Dion.....	Nil.
J. B. Chevalier.....	Barbotte, \$14 per brl.; pickarel and bass, from 8 to 10 cts. per lb.; other fish, \$7 per brl. Eels are sold for \$12 per 100 where exported.
P. E. Luke.....	Pickarel, 8 cts. per lb.; shad, 10 cts. per lb.; mixed fish, \$6 per brl., delivered to railway station packed in barrels.
P. W. Nagle.....	About 10 cts. per lb.; none prepared for exportation.
J. Shurtleff.....	None prepared for exportation.
A. L. Darche.....	Offered for sale at 10 cts. per lb.; none exported.
J. B. McDonald.....	10 cts. per lb.; none exported.



QUESTION No. 9—QUEBEC—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

D. Shooner.....	Sturgeon, 7 cts.; bass, doré and eels, 8 to 10 cts.; maskinongé, 12 to 15 cts. Sold in United States markets from 7 to 10 cts.
G. Boisvert.....	None.
S. A. Grant.....	Pickarel and pike, 5 cts. and 3 cts.; maskinongé, 5 cts.; eels, 3 cts.; barbue, 4 cts.; catfish, 40 cts. per bush.
J. Charbonneau.....	Bass, pike, maskinongé and sturgeon sell for 10 cts. per lb.; soft fish from 6 to 8 cts.
Jno. Morris.....	None exported.
A. Robert.....	None sold or exported.
J. Lauzon.....	Prices vary from 6 to 8 cts. per lb. None exported.
J. Filiatrault.....	Trout sell from 8 to 10 cts. per lb., according to size.
R. Jones.....	Prices vary from 6 to 12 cts. per lb.
R. Joynt.....	None.
Jos. Marion.....	Bass, pickarel, pike, maskinongé, eels are sold at 5 cts. per lb.; gray trout, 7 cts. per lb.; speckled, 10 cts. per lb.
J. T. Coghlan.....	Prices of fish vary from 5 to 8 cts. per lb.

## ONTARIO.

Thos. Keefer.....	While the fishermen on the United States side get 4 cts. per lb. from the buyers, those on the Canadian side get under 3 cts. for trout, whitefish and pickarel, and 1½ cts. for sturgeon, as the freighting of tugs and duty comes off the price. Frozen fish in winter brings 3 cts. per lb., and is disposed of on Canadian markets. For salt fish the buyers furnish barrels, salt, &c., and pay 2 cts. per lb.
Isaac Turner.....	Trout and whitefish, \$4.50 per 100 lbs.; doré (pickarel), \$5 per 100 lbs.; bass, \$3.50 per 100 lbs.
Robt. Boyter.....	4 cts. per lb.
F. Prout.....	Salmon-trout sell at fishing grounds for 3 cts. per lb.; whitefish, 4½ cts., and pickarel 4 cts. per lb.
R. H. Murray.....	Trout, per package, \$4; whitefish, \$4; herring, \$2.50.
H. McFayden.....	Speckled-trout is sold as high as 25 cts. per lb.
J. C. Pollock.....	Sturgeon, 5 cts. per lb.; pickarel and whitefish, 3 cts., and mixed fish, 2 cts. per lb.
H. W. Ball.....	At the fishing grounds, whitefish and trout, 3¾ cts. per lb.; pickarel, 3 cts.; herring, 2 cts.; sturgeon, \$1 each, and coarse fish, 1 ct. per lb. When delivered at market 1 cent more is obtained per lb.
H. B. Quarry.....	When prepared for exportation, trout, whitefish, pickarel and sturgeon sell at an average of 3 cts. per lb.
C. W. Raymond.....	Pickarel, 6 cts.; bass, 6 cts.; pike, 3 cts.; soft fish, 1 ct. per lb.
P. McCarron.....	None sold.
T. McQueen.....	The prices paid at the various fishing grounds in my division by American purchasers are as follows:— Pickarel and pike, worth 6 cts. per lb., and coarse fish 1½ cts. per lb.

QUESTION No. 9—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

Jos. Boismier.....	Whitefish, 6 cts. ; pickerel, 4 cts. ; sturgeon, 5 cts. bass, 6 cts. ; herring, 2 cts. ; pike, 3 cts. ; maskinongé, 5 cts., and coarse fish, 1½ cts. per lb.
Wm. Prosser.....	Whitefish, 5 to 5½ cts. per lb. ; bass and pickerel, 4½ to 5 cts. per lb. ; herring, ¾ to 1 ct. per lb. ; sturgeon, \$1.75 to \$2 each ; catfish, 2½ cts. per lb. ; coarse fish, 1 ct. per lb.
David Girardin.....	At the fishing grounds:—Whitefish, 5 cts. per lb. ; pickerel, 4 cts. ; herring, 1 ct. ; bass, 5 cts. ; sturgeon, 3 cts. ; catfish, 2 cts. ; coarse fish, white bass and blue pickerel, at 1 ct. per lb. These fish delivered in the market sell at twice the above figures.
Jno. McMichael.....	At fishing grounds:—Whitefish, 4½ cts. per lb. ; bass, 4 cts. ; pickerel, 4½ cts. ; herring, ¾ ct. ; sturgeon, dressed, 4 cts. ; catfish, 2½ cts. ; perch and coarse fish, 1 ct. Very few other varieties are caught in these waters.
David Sharp.....	Whitefish, 5 cts. per lb. ; sturgeon, 3 cts. ; yellow pickerel, 5 cts. ; blue pickerel, 2 to 3 cts. ; pike, 3 to 4 cts. ; herring, 1 to 1½ cts. The above prices with freight added, delivered.
C. W. Evans.....	None.
W. P. Croome.....	I never saw any fish the product of this district offered for sale.
Fred. Kerr.....	White and salmon-trout, 6 cts. per lb. ; pickerel and sturgeon, 5 cts. per lb. ; herring and ciscoes, \$1.10 per 100, smoked ; 3 cts. per lb. fresh ; smoked sturgeon, 6 cts. ; bass, 5 cts. ; pike, 3 and 4 cts.
Wm. Sargent.....	Ciscoes average \$1.25 per 100 ; no other fish shipped worth quoting.
Wm. Helliwell.....	Coarse fish are retailed at \$2.50 per 100, and peddled at \$2 per 100 ; none exported.
Chas. Gilchrist.....	Salmon-trout are sold at or near the fishing grounds at 7 cts. per lb. ; ciscoes, 5 cts. ; pike, 3½ cts. ; bull-heads, 3½ cts. ; maskinongé, 5 cts. ; bass, 5 cts. ; pike and bull-heads sent to the United States by the dealers in fish get 6 cts. per lb.
W. P. Clarke.....	Whitefish, 4 cts. per lb. at fishing ground ; herring, ¾ ct. ; bass, 4 to 6 cts. ; pickerel, 4 to 6 cts. ; pike, 3 cts. ; eels, 3 cts. ; bull-heads, 4 to 4½ cts., dressed ; suckers, 1 ct.
Jas. Redmond.....	Whitefish, salmon-trout, bull-heads, bass and pike will average at the fishing grounds 4 cts. per lb. (6 cts. in the vessels) ; herring, bloats, &c., will average 3 cts. per lb. in the vessels.
A. D. Sills.....	Whitefish, pickerel, pike, 4½ cts. when prepared for exportation ; mudcats, 3 cts. ; eels, 3 cts. ; bass, 4 cts. and when in the market, 10 or 12 cts. is obtained.
R. R. Finkle.....	Salmon, whitefish and bass, at grounds, 4 cts. per lb. ; pickerel, 4 cts. ; pike, 3 cts. ; shipped at 1c. advance on these prices.

QUESTION NO. 9—ONTARIO—*Continued.*

## FISHERY OFFICERS.

## ANSWERS.

Peter Kiel.....	The average price of coarse fish at the fishing grounds is 4 cts. per lb.; the bull-heads are dressed, but sold fresh; they are generally caught in cold weather and don't require salt or ice; marsh pike and eels are sold fresh for about the same price as bull-heads, if delivered on the American side they get about $\frac{1}{2}$ cent more.
Thos. Merritt.....	Salmon-trout and whitefish, 6 to 7 cts. per lb.; bass, 7 cts.; herring, 8 cts.; pike, 4 cts.; eels, 5 cts.; all kinds of coarse fish, such as mudcats, perch, suckers, &c., realize prices varying from 2 to 4 cts.; sturgeon realize about 3 cts.
N. Acton.....	None exported nor prepared.
Henry Hunt.....	Not known.
T. McGarity.....	No market here.
P. St. Pierre.....	Between 4 and 5 cts. per lb.; part of it sold in the back concessions and part sent to Ottawa market.
O. Miron.....	None.
W. W. Boucher.....	At or near fishing grounds, pickerel are worth 7 cts. per lb.; bass, 7 to 9 cts.; maskinongé, 9 cts.; coarse fish, 5 to 6 cts.; when delivered in market are worth about 1 cent more per lb.
John Grant.....	I am not aware of any being prepared for exportation, therefore I cannot state price.
J. S. Richardson.....	The price varies according to weather; in cold weather, pike are worth 3 cts. per lb.; pickerel, maskinongé, black bass and whitefish, 4 cts.; herring and suckers, 1 ct.; the express charges about \$1.60 per 100 to take them to market.
Geo. R. Steele.....	The general price of fresh fish per lb., as sold in the markets at Parry Sound by fishermen from Georgian Bay, is as follows:—Whitefish, 6 cts. per lb.; salmon-trout, 6 cts.; pickerel and bass, 5 cts.; maskinongé, 6 cts.; coarse fish, 3 cts. per lb.
J. G. Rumsey.....	None prepared; all consumed on the spot.
H. W. Gill.....	There is no market price, no trade of any account being done.
L. S. Sanders.....	Salmon (which are caught by angling) average 10 cts. per lb.; black bass, 5 cts.; herring, 25 cts. per doz. No export that I am aware of.
A. Hughson.....	Speckled-trout is sold at from 50 to 75 cts. per lb., and what can be got for them; none exported; all are used by the inhabitants and vicinity.
N. Simmons.....	The few that are sold in the winter sell as follows:—Maskinongé and pickerel, 5 cts. per lb., and pike 4 cts. per lb.
G. W. Fitzgerald.....	They sell at 6 cts. per lb. just as they come out of the water, and 8 cts. per lb. when prepared.
David Breeze.....	Five to 6 cts. per lb.
R. A. Gilbert.....	Near fishing grounds, 10 cts. per lb. None exported.
Geo. Lake.....	None exported.
S. Boddy.....	Bull-pouts, 5 cts. per lb., delivered in January and February at Kingston.
Wm. Hicks.....	Do not know.



QUESTION No. 9—ONTARIO—*Continued.*

FISHERY OFFICERS.	ANSWERS.
Geo. Jeacle.....	Four cents about average price, prepared and delivered, sold at Kingston market.
John Murphy.....	Salmon for home market, 10 cts. per lb.; whitefish, 8 cts. per lb.; bass, 10 cts. per lb.; bull-heads, 4 cents per lb., sent to New York.
Eph. Deacon.....	The above kinds of fish might bring from 6 to 8 cts. per lb., if offered for sale.
A. Wilson.....	None exported.
R. O. Campbell.....	None prepared for exportation; few sold are fresh, at about 5 cts. per lb.
Geo. Russell.....	None for exportation.
M. L. Russell.....	None prepared for exportation.
H. Gallagher.....	Same as No. 8, viz, none prepared for exportation.
Geo. Douglas.....	None sold here, to my knowledge.

QUESTION No. 10.—*Are the Local Officers in charge of the fisheries well instructed in their duties, and are they acquainted with the Fishery Laws and with the habits of fish?*

QUEBEC.

FISHERY OFFICERS.	ANSWERS.
Alf. Blais.....	Yes.
J. F. Picotin.....	None in my charge.
J. Laberge.....	Yes, he is well informed on the habits of fish and well acquainted with the fishery laws.
J. Kelly.....	Yes.
J. O. Dion.....	Yes; but public notices should contain more information such as size of mesh, license fees for each apparatus, &c.
J. B. Chevalier.....	No officer under his charge.
P. E. Luke.....	Nil.
P. N. Nagle.....	No local officers.
J. Shurtleff.....	Yes, as regards the fishery laws; but not fully acquainted with the habits of fish.
A. L. Darche.....	Yes.
J. B. McDonald.....	Yes.
V. Veilleux.....	No other officer in his charge.
D. Shooner.....	No other officer under his charge.
G. Boisvert.....	Yes.
S. A. Grant.....	None under his charge.
J. Charbonneau.....	No other officer under my charge.
Jno. Morris.....	Nil.
A. Robert.....	Yes.
J. Lauzon.....	Yes.
J. Filiatrault.....	Yes.
R. Jones.....	Yes.
R. Joynt.....	Yes.
Joseph Marion.....	All fishery officers in his district seem to understand the fishery regulations and the habits of fish.
J. T. Coghlan.....	Yes.



QUESTION No. 10—*Continued.*

## ONTARIO.

## FISHERY OFFICERS.

## ANSWERS.

Thos. Keefer.....	He is alone, and states he is well acquainted with the fishery laws and habits of fish.
Isaac Turner.....	Yes.
Robt. Boyter.....	Well posted in lake fisheries, but not in stream fisheries.
F. Prout.....	Knows not the other officers.
R. H. Murray.....	Yes.
H. McFayden.....	Yes.
J. C. Pollock.....	He is well posted as to his duties.
H. W. Ball.....	Yes, he is well acquainted with the fishery laws and habits of fish.
H. B. Quarry.....	No other officers in his district.
C. W. Raymond.....	Yes.
P. McCarron.....	Yes.
T. McQueen.....	The local officers, contiguous to my division, and with whom I am acquainted, are well instructed in their duties, and are acquainted with the fishery laws and with the habits of fish.
P. McCann.....	Yes.
Jos. Boismier.....	Well informed.
David Girardin.....	The officers in my district are well instructed in their duties, also acquainted with laws.
David Sharp.....	I believe all concerned understand their duties and the laws governing the fisheries. As to the habits of fish, we believe there is much information yet to be found out.
W. P. Croome.....	I am the only fishery officer in this district, and I have endeavoured to keep posted in my duties, and to know the Fisheries Act, and study the habits of the fish frequenting this locality.
Geo. Price.....	Yes, I am well acquainted with the fishery laws and with the habits of fish.
Fred. Kerr.....	Some are, and others are not.
Wm. Sargent.....	They are.
Wm. Helliwell.....	I consider myself well posted in the fishery laws and the habits of fish.
Chas. Gilchrist.....	I cannot say; I never made inquiries to that effect.
W. P. Clarke.....	There are no local officers under my supervision.
Jos. Redmond.....	Yes.
A. D. Sills.....	None in division.
R. R. Finkle.....	Yes.
Peter Kiel.....	As far as I know the local officers are thoroughly acquainted with their respective duties, and have the confidence of the people in this vicinity.
Thos. Merritt.....	Yes.
N. Acton.....	Fairly well.
Henry Hunt.....	Instructed by the Fisheries Act only.
T. McGarrity.....	I am the sole officer between Morrisburg and Lancaster, about 40 miles, for the last eleven years, and I believe I have a fair knowledge of fishery matters.
P. St. Pierre.....	Yes.
O. Miron.....	Well posted in fishery laws and habits of fish.

QUESTION No. 10—ONTARIO—*Continued.*

FISHERY OFFICERS.

ANSWERS.

W. W. Boucher.....	Yes.
John Grant.....	Fairly well instructed; has a limited knowledge of the habits of fish.
J. S. Richardson.....	Yes.
Geo. R. Steele.....	There is no other local fishery officer in this division.
J. G. Rumsey.....	Yes. Well instructed. I am alone. Yes.
H. W. Gill.....	Yes. Yes. Moderately.
Henry Castle.....	Yes.
L. S. Sanders.....	I have no means of knowing of other fishery overseers, as to their acquaintance with the fishery laws.
A. Hughson.....	So far as I am informed, and from conversation with them, I judge they are well instructed as to the laws, but about the habits of fish they do not know very much.
N. Simmons.....	There is no one else in my division but myself, and I have endeavoured to find out the habits of fish and mode of spawning.
G. W. Fitzgerald.....	Some of the fishery officers have not got the Fisheries Laws. Some are not very well posted regarding the law or the close seasons. Better send some copies of the laws and close seasons to distribute.
David Breeze.....	Yes.
Wm. Gainsforth.....	Yes.
R. A. Gilbert.....	Yes.
Geo. Lake.....	Pretty generally.
S. Boddy.....	Yes.
Wm. Hicks.....	Yes, as far as I know.
Geo. Jeacle.....	Yes, very fairly acquainted.
John Murphy.....	Yes. Yes. Yes.
Eph. Deacon.....	As far as I am aware, they are.
A. Wilson.....	They are.
R. O. Campbell.....	They are.
A. L. Russell.....	Yes.
H. Gallagher.....	I can only speak for myself. Have not been well instructed regarding duties of office. Know very little of nature and habits of fish. Never did fish or interested in fishing before my appointment as overseer.
Geo. Douglas.....	Yes. Well instructed in duties of fishery laws, &c.



PART II

---

REPORT

ON

FISH-BREEDING OPERATIONS

IN THE

DOMINION OF CANADA

1892





# INDEX

## FISH-BREEDING REPORT.

SUPERINTENDENT'S REPORT ON FISH-BREEDING OPERATIONS, 1892.

### INTRODUCTORY.

	PAGE
1. Manitoba hatchery.....	5
2. Hatchery work generally.....	5
3. Lobster hatchery, Bay View, N.S.....	6
4. Results of fish culture.....	6
5. Fry, output of all kinds, 1892.....	7
6. Fry-and eyed eggs put out of each hatchery.....	7
7. Fry, grand total since commencement of each hatchery.....	8
8. Addendum with results of fish culture.....	9

### APPENDICES.

1. Report on Fraser River hatchery, B.C., by John McNab.....	15
2. do Sydney do N.S., by W. J. Dunlop.....	17
3. do Bedford do N.S., by A. B. Wilmot.....	17
4. do Dunk River do P.E.I. (not operated).....	
5. do St. John River do N.B., by Charles McCluskey.....	19
6. do Miramichi do N.B., by Isaac Sheasgreen.....	21
7. do Restigouche do Que., by Alexander Mowat.....	25
8. do Gaspé do Que., by Henry Davis.....	27
9. do Tadoussac do Que., by L. N. Catellier.....	29
10. do Magog do Que., by A. H. Moore.....	30
11. do Newcastle do Ont., by John Kenefick.....	31
12. do Sandwich do Ont., by Wm. Parker.....	33
13. do Ottawa do Ont., by John Walker.....	35
14. do Bay View do N.S., by Alfred Ogden.....	36
15. do Moisie do Que., by John Holliday.....	36

### ANNEXES TO FISH-BREEDING REPORT.

1. Extracts from proceedings at the International Fishery Conference held at Detroit, Michigan.....	38
2. The Culture of Fish, by Mr. Latouche Tupper.....	77
3. The Salmon Fisheries of Alaska.....	79
4. Artificial propagation of food-fishes, &c., by Rev. Moses Harvey, LL.D.....	82



# REPORT

OF

MR. SAMUEL WILMOT,

*Superintendent of Fish Culture for the Dominion of Canada,*

FOR THE YEAR 1892.

---

Hon. CHAS. H. TUPPER,

Minister of Marine and Fisheries,  
Ottawa.

The following report is concisely given to show the extent of work performed at the several hatcheries in the several provinces of the Dominion during the year 1892; and appended hereto will also be found the particular reports of the several officers having charge of the individual hatcheries.

## 1.—MANITOBA HATCHERY.

In the report of 1891 it was mentioned that this province was the exceptional one in which fish-breeding was not carried on, but that arrangements were being made to build a hatchery at the town of Selkirk, on the Red River; this has been accomplished by the erection of a large and commodious building with the capacity of laying down some hundreds of millions of whitefish eggs. Considerable room is also given for the breeding of salmon-trout, and such other fish as may be found most desirable for adding fish wealth to the waters of Manitoba and the North-west Territories.

The Selkirk hatchery is situated within the limits of the town of Selkirk on the immediate bank of the Red River. It is a wooden structure of considerable dimensions being      feet in length, by      feet in width; the main or lower floor consists of a breeding house to be fitted up with automatic glass incubators for hatching whitefish, together with a series of troughs for holding the necessary hatching trays for breeding salmon trout and other species.

The motive power for driving the machinery for procuring the requisite supply of water from the Red River, consists of a steam boiler with patent duplex pump attached, of      horse-power, capable of supplying      gallons of water per minute through an underground iron conductor pipe direct from the deep channel of the river—the water being run into a large tank on the second floor of the building, from whence it is drawn off as required to supply the automatic incubators, and breeding troughs arranged on the floor below.

The building and all appliances connected therewith are in an advanced state towards completion at the present date, and will be in readiness to carry on the work of artificial fish-breeding on an extensive scale for the coming season of 1893.

## 2.—THE OTHER HATCHERIES, THEIR WORK AND POSITION.

All of the other hatcheries located at different points from the Pacific coast to the Atlantic are in a satisfactory condition, well stocked with fish eggs of various kinds, excepting the nursery at Sydney, C.B., where the usual effort to procure salmon ova the past autumn was temporarily suspended. These hatcheries contain a somewhat larger aggregate of eggs in them than the usual average of former years, and although two of the lower province nurseries did not secure eggs in their own localities, they were nevertheless supplied from the Ontario hatcheries at Newcastle and Sandwich.



The latest returns from each of these institutions represent them to be working in a satisfactory manner, and the eggs in them showing marked signs of embryonic development with healthful indications for bringing forth a large crop of fry for the approaching season's distribution.

### 3.—LOBSTER HATCHERY AT BAY VIEW.

This is the second year in which lobster hatching operations have been carried on. In 1891, this industry was first introduced into Canada by putting up the necessary building with the experimental appliances of hatching the lobster eggs in Wilmot's automatic glass incubators, by slightly changing them from the jar used in breeding whitefish. They proved to be well adapted for the work, but as the season for collecting lobster eggs was about over when the establishment was completed, only 7,000,000 of fry were produced. The present season of 1892, however, proves to be of a most satisfactory character in turning out about 70,000,000 of young lobsters. This result has thrown aside all doubts regarding the practicability of hatching the lobster eggs with as much or even greater certainty than the ova of other fish at the establishments where artificial culture has been carried on for years past. The adaptability of the automatic incubator for lobster hatching is, beyond all doubt, an assured success. It is only the work of establishing sufficient numbers of hatcheries that will prevent the further diminution of the lobster industry, which has been brought about from over-fishing, fishing in the breeding season and killing the small, immature lobster, by the improvident action of the lobster packers and fishermen.

### 4.—PRACTICAL RESULTS OF ARTIFICIAL FISH CULTURE.

It will be unnecessary to dwell upon this subject at this stage of the report, other than to draw attention to the letters and certificates which will be found appended hereto, taken from some of the reports of the officers in charge of individual fish hatcheries, and to refer to the *General Remarks on Fish Culture* as published on pages vi, vii, viii, ix, x, xi, xii, xiii and xiv of the Annual Report of the Department of Marine and Fisheries for the year ending 30th June, 1892, which remarks refer to the successes attending fish culture, not only in Canada, but also in the United States and Europe.

There will also be found in the annex to this report valuable matter relating to the protection and propagation of fish, comprised in the following paper, namely:—

1. "Extracts from proceedings at the International Fisheries Conference held at Detroit, U.S., in December last."
2. An article on the culture of fish, by Latouche Tupper.
3. The Salmon fisheries in Alaska, from *Forest and Stream*.
4. A paper read before the Royal Society of Canada, by Rev. Moses Harvey, LL.D., on the artificial propagation of food-fishes, &c.

### TABULATED STATEMENTS.

The following tables will give detailed particulars of the work done at the several hatcheries during 1892, as follows:—

(1.) A general statement of the output of fry of all kinds bred at the several fish hatcheries of the Dominion during the year, showing the numbers of each kind and their species, making a grand total of 135,959,500.

(2.) A statement in tabulated form showing the number and species of young fish and semi-hatched eggs that were distributed from and received at each of the several hatcheries in Canada during the season of 1892.

(3.) A tabulated statement showing the gross numbers of young fish of all kinds which have been turned out of each hatchery into the waters of Canada, from the commencement of operations at each nursery up to the present time, making in the gross an exhibit of 1,047,489,200 of fry, comprising the higher orders of fish, and best adapted for the commercial and domestic wants of the country.

# 5.—GENERAL STATEMENT OF THE OUTPUT OF FRY OF ALL KINDS FROM THE SEVERAL HATCHERIES DURING 1892.

The total distribution of young fish in the various waters of Canada from the individual hatcheries in 1892 was 135,959,500, of the following described species:—

Atlantic salmon ( <i>Salmo Salar</i> ).....	5,639,000
Pacific salmon ( <i>Sockeye Oncorhynchus nerka</i> ).....	6,000,000
Salmon-trout, great lakes ( <i>Naymacush</i> ) .....	4,177,000
Speckled or brook trou ( <i>Fontinalis</i> ).....	253,500
Whitefish, of the great lakes ( <i>Coregoni</i> ).....	56,390,000
Lobster fry ( <i>Homarus</i> ).....	63,500,000

Grand total, 1892..... 135,959,500

6.—A tabulated form in which is shown in separate columns the number, and name of each hatchery, the quantities of fry put out from each, the numbers of semi-hatched eggs sent from, and received at, the hatcheries, and the particular species of fry and eggs so distributed:—

## SCHEDULE AS DESCRIBED.

Number.	Name of Hatchery.	Number of Fry put out.	Number of semi-hatched Eggs sent to other Hatcheries.	Number of semi-hatched Eggs received from other Hatcheries.	Description of Fish.
1	Fraser River, B.C.....	6,000,000			Salmon, sockeye.
2	Sydney, N.S.....	690,000			do <i>salar</i> .
3	Bedford, N.S.....	520,000		350,000	do do
	do .....	300,000		500,000	Salmon-trout.
	do .....	1,800,000		2,000,000	Whitefish, <i>coregoni</i> .
4	Dunk River, P.E.I.....				Not in operation.
5	St. John River, N.B.....	1,880,000		2,000,000	Whitefish, <i>coregoni</i> .
	do .....	208,000		500,000	Salmon-trout.
	do .....	290,000			do <i>salar</i> .
6	Miramichi, N.B.....	1,310,000	350,000	100,000	do do
7	Restigouche, N.B.....	1,240,000	100,000		do do
8	Gaspé, P.Q.....	965,000			do do
9	Tadoussac, P.Q.....	624,000			do do
10	Magog, P.Q.....	1,500,000		2,000,000	Whitefish, <i>coregoni</i> .
	do .....	900,000		1,000,000	Salmon trout.
11	Newcastle, Ont.....	1,770,000	3,000,000		do
	do .....	2,800,000		3,000,000	Whitefish.
	do .....	253,500	100,000		Speckled trout.
12	Sandwich, Ont.....	4,450,000	14,000,000		Whitefish.
13	Ottawa, Ont.....	3,910,000		5,000,000	do
	do .....	999,000		1,000,000	Salmon-trout.
	do .....	4,909,000		100,000	Speckled trout.
14	Bay View, N.S.....	63,500,000			Lobsters.
	Totals .....	135,959,500	17,550,000	17,550,000	

# 7.—GRAND TOTAL OF YOUNG FISH OF ALL KINDS PUT OUT OF THE SEVERAL CANADIAN FISH HATCHERIES FROM THE ORIGIN OF THE INDUSTRY UP TO THE PRESENT TIME, 1892.

The following schedule shows the gross output of fry of all kinds, from each hatchery in each province, the name of the hatchery, the province where located, the year in which they were each established, exhibiting a total number of fry of all species, amounting to 1,047,489,200:—

STATEMENT showing the Places where, and the Years in which the several Fish Hatcheries have been erected; also the number of Fry distributed from each Establishment, annually, since they were built.

YEAR.	ONTARIO.		QUEBEC.				NEW BRUNSWICK.		NOVA SCOTIA.		PRINCE EDWARD ISLAND.	BRITISH COL-UMBIA.	TOTALS.				
	Newcastle.	Sandwich.	Ottawa.	Magog.	Tadoussac.	Gaspé.		Restigouche.	Miramichi.		St. John River.	Bedford.		Sydney.	Bay View Hatchery.*	Dunk River.	Fraser River.
						Fry.	Fry.		Fry.	Fry.							
1868 73	1,070,000																Fry. 1,070,000
1874	350,000																510,000
1875	650,000																1,570,000
1876	700,000																9,655,000
1877	1,300,000	8,000,000															13,451,000
1878	2,605,000	20,000,000															21,684,700
1879	2,602,700	12,000,000															21,013,500
1880	1,923,000	13,500,000															22,949,000
1881	3,300,000	16,000,000															55,794,000
1882	4,841,000	44,000,000															83,784,600
1883	6,053,000	72,000,000															1,040,000
1884	8,800,000	37,000,000															1,000,000
1885	5,700,000	68,000,000															81,067,000
1886	6,451,000	57,000,000															76,724,000
1887	5,130,000	56,500,000															500,000
1888	8,076,000	56,000,000															5,807,000
1889	5,846,500	21,000,000															88,109,000
1890	7,736,000	52,000,000															68,700,000
1891	7,807,500	73,000,000															90,213,000
1892	4,825,500	44,500,000															113,771,800
Totals	85,765,000	680,500,000	17,685,000	18,500,000	16,742,000	12,114,000	20,890,000	14,935,000	23,245,200	31,725,000	12,429,500	70,500,000	6,145,000	35,308,300	1,047,489,200		

The particular descriptions of fry above enumerated were as follows :—

*Salmonide*—Atlantic and Pacific salmon, and speckled trout of the streams

do Whitefish (*Coregonus*) of the great lake region

*Percide*—Pickereel, or doré (*Luciopeca*)

Lobster fry (*Homarus Americanus*)

Grand totals of all kinds. . . . . 1,047,489,200

The particular descriptions of fry above enumerated were as follows:—

*Salmonidae*—Atlantic and Pacific salmon, and speckled trout of the streams

do Whitefish (*Coregonus*) of the great lake region

*Percidae*—Pickerel, or doré (*Esox lucius*)

Lobster fry (*Homarus Americanus*)

Grand totals of all kinds.

1,047,489,200

NOTE.—In addition to the written 85,745,000 fry distributed from this parent establishment at Newcastle, there are annually transferred from this institution to the eastern province hatcheries large numbers of semi-hatched ova of various kinds.

In like manner the Sandwich nursery transfers annually large quantities of eyed eggs to other hatcheries, exclusive of the 660,500,000 of fry shown above.

\*The hatchery at Bay View, N.S., is devoted wholly to lobster hatching.

The following papers will be found appended to this report, viz. :

1. Addendum showing results of fish culture.
2. Appendices containing reports of the officers in charge of the several hatcheries for 1892.
3. Annex comprising papers A, B, C and D, in which general information will be found relating to discussions had and papers read at conferences in Canada and the United States in respect to fish and fisheries.

Humbly submitted,

SAMUEL WILMOT,  
*General Superintendent Fish Culture for Canada.*



## 1.—ADDENDUM.

### RESULTS OF ARTIFICIAL FISH CULTURE.

*Letter from A. H. Gillmor, M.P., relating success from planting salmon fry in Magaguadavic River in New Brunswick.*

HOUSE OF COMMONS, 28th February, 1893.

MY DEAR SIR,—Some years ago the Government built a fish-way on the Magaguadavic River, and for some years we could not positively ascertain that any fish had gone through this fish-way. About five years ago some salmon fry were placed in that river. When we had about given up hopes of seeing any return for this outlay, behold, last spring the salmon came in considerable numbers, and we were informed by those who pretended to know, that the salmon that were caught—eight or ten—were about five years old. The community are delighted with the prospect of this becoming an excellent salmon river, and we want you to instruct Mr. Wilmot to see 500,000 young salmon planted in Lake Eutopia on that river.

Yours truly,

A. H. GILLMOR.

Hon. J. COSTIGAN.

*(Extracts from Restigouche Report.)*

ROBERTSONVILLE, 10th December, 1892.

MR. ALEXANDER MOWAT,  
Restigouche Hatchery.

DEAR SIR,—In answer to your request desiring information regarding the stock of fish in the Upsalquitch River last season, I beg to say I was 40 miles up this river during the months of May and June, bear hunting along its banks, and saw a good showing of very large fish in the branches above the Forks in June. This is something unknown for this river; I have lived on it for the last 10 or 12 years and never knew salmon to go up it until July; I firmly believe this is the result of the fry planted from the Restigouche hatchery; there is no other way of accounting for it, as well as the great increase of fish in the river; and I would say to the Government and those engaged in fish culture to increase the good work began. The fish were also very plentiful in the river, below the Forks, in July and August. Also the young salmon parr are very numerous. This river will soon be as famous as the Restigouche for fly fishing.

I am, yours truly,

MARSELLES MARSHALL.

ROBERTSONVILLE, 11th December, 1892.

MR. ALEXANDER MOWAT,  
Restigouche Hatchery.

DEAR SIR,—In answer to your letter of the 5th inst., I may say I was with Mr. Marshall, bear hunting, on the Upsalquitch River in May and June, last season, and I can corroborate what he says about the salmon. I saw some very large fish about the Forks, which is 30 miles from its mouth; they looked like the Restigouche fish, and I certainly believe it is the result of planting the Restigouche fish in this river, as salmon were never known to run into it before the 1st of July, and then only small 10-

pound fish. Those I saw above the Forks would weigh 30 pounds. The main river below the Forks was full of fish in August; the salmon are getting more plentiful every year, and it must be the fry put in from the hatchery. I would therefore say, increase the number of fish beyond those planted in previous years. Fly fishing is good now, and water is getting more valuable every year.

Yours truly,

GEORGE <sup>his</sup> × THOMAS.  
mark

Witness, RAYMOND CULLEN.

*(Extracts from Miramichi Report.)*

REGARDING BENEFITS.

Very little of importance regarding the beneficial results of the work at this hatchery can here be included, except that which has been previously written. Opinions of the leading fish dealers, anglers and net fishermen could be obtained, but as they do not furnish any new ideas, and as their views have been included in my report for 1889, 1890 and 1891, it seems sufficient to say that all concur in the one opinion, that artificial breeding is a benefit of the greatest kind to the river upon which it is successfully carried on.

*(Extract from Newcastle, Ont., Report.)*

Fishery Overseer W. P. Clarke, of Belleville, Ont., forwards a letter from W. Black, fish dealer of that place, covering a communication from eighteen fishermen of the Bay of Quinté, testifying to the advantages of stocking their waters with fry, as evidenced by the increase both in size and numbers of whitefish frequenting these waters.

Mr. Black declares that the fish this last fall were very numerous and of large size, and attributes this largely to previous planting of young fish. He asks for some pickerel fry.

The overseer states he is confident the planting of fry has doubled the whitefish in the bay, that at the time when fry were first put in the fishing was nearly depleted, but that last fall whitefish were more plentiful than for twenty years before.

18th January, 1893.

BELLEVILLE, 14th January., 1893.

Mr. J. KENEFICK.

DEAR SIR,—I received your letter on the 12th instant, and I made it my business to see some of the fishermen in my district, and I asked them their opinion as to whether the putting whitefish fry into the bay, was a benefit or not. I asked them to express their opinion in writing; I enclose you their letter signed by eighteen fishermen. I will also enclose Mr. Black's (fish dealer) letter. If I had a few days so that I could see all the fishermen in this district, I am sure they would all say the fry which have been put in the Bay of Quinté by yourself and other Government officers has been the means of doubling the whitefish in the bay. In my opinion the bay fishing for whitefish was done when Mr. Wilnot commenced stocking it, and it has been on the improve ever since. I am satisfied there were more fish in the bay this fall than there has been before for twenty years. I think it would be a great benefit if there was some pickerel fry put in our waters as they are fish that will stay with us the year around and they are as good a price as any fish we catch, even the whitefish.

Hoping these few lines will meet with your approval.

I remain, yours truly,

W. P. CLARKE.

BELLEVILLE, ONT., 14th January, 1893.

Mr. JOHN KENEFICK,

Officer in charge of the Newcastle Hatchery.

DEAR SIR,—I have been asked by the fishery officer here, Mr. Clarke, if the putting of fry in the bay, was of any benefit and I can say that I know it is of great benefit, for I have noticed that the last four years that whitefish have increased very fast and this fall they were very thick and the largest whitefish I ever saw in the bay. We got whitefish here last fall that weighed as high as nine pounds and would average from two and ahalf to three pounds right through.

Yours truly,

W. BLACK.

P.S.—I also think it would be a great benefit for pickerel fry to be put in the bay.

BELLEVILLE, ONT., 13th June, 1892.

JOHN KENEFICK,

Officer in charge of Newcastle Hatchery.

DEAR SIR,—We have been asked by the fishery officer here, Mr. Clarke, if the putting of fry in the bay was of any benefit; we, as fishermen, know that it is of great benefit to us for the fish have been increasing this last four years, and last fall they were very thick and large

We remain,

Yours respectfully,

JOSEPH LARUE,  
DAVID BELNAP,  
NICHOLAS McDONALD,  
DANIEL BELNAP,  
W. McDONALD,  
ROBERT McDONALD,  
GEO. McDONALD,  
W. McDONALD,  
J. H. VANCOTT,

T. W. LARUE,  
THOMAS IRWIN,  
A. W. WEESE,  
J. BELNAP,  
SAMUEL GEDDES,  
W. H. BRICKMAN,  
H. B. BRICKMAN,  
D. YEROW,  
JOHN HASLETT.

*(Extracts from the Sandwich Report.)*

PETITE CÔTE, ONT.

DEAR SIR,—I give you my opinion concerning your fish hatchery. I must certainly say it is a great improvement, and that is what all the fishermen know for the last few years, whitefish is increasing and herring is decreasing.

Yours truly,

ROBERT ADAMSON.

Mr. PARKER.

PETITE CÔTE, ONT.

DEAR SIR,—You asked me for my ideas of the hatchery. I will tell you, sir, that I think if it was not for your hatchery we would have no more whitefish in the river, for I have been fishing in this river for about twenty-five years. About fifteen years ago we used to catch herring from fifteen to twenty thousand a day with one net, but this last three or four years we hardly catch any; that shows if it were not for the fish hatchery it would be the same with whitefish.

I am, yours respectfully,

JACQUES PARÉ.

Mr. PARKER.

PETITE CÔTE, ONT.

DEAR SIR,—I am asked what about the fish in the Detroit River. I am glad to say the whitefish are more plentiful the last two years than for some years before. But the herring are getting less; and I think the credit goes to the fish hatchery for the whitefish.

Yours truly,  
D. REOME.

Mr. PARKER.

RIVER CANARD, ONT.

DEAR SIR,—As I have seen a good deal in the papers about hatching whitefish; some claim that it would be as well to let the fish spawn in the pens, that they would hatch as well, but I think it all nonsense, for the reason that those pens are so dirty. I dare say that there is not one pen in the river but what there is from six to ten inches of mud in the bottom, so that the spawn would naturally bury itself in that dirt and rot of course. I think it is a good thing to have the fish hatchery, for I look at it in this way: You take the whitefish, although not very plentiful, but yet they have increased a little these last few years. There were more whitefish caught last fall than there has been for some five or six years, and my reason for believing that the hatcheries are good is this: You take for instance the herring, there were any amount of them about six or seven years ago; they are not bred in the hatcheries around this part and they are now run down to nothing, in fact we can't catch one hundred herring to a thousand whitefish now. I can remember about seven years ago, I was foreman for C. W. Gauthier, on Pier Station No. 1, and we caught about one hundred thousand herring in one day's fishing, and I am certain that there were not one hundred herring caught in any one day last fall; and I could mention different kinds of other fish that are not hatched artificially and they are decreasing in the same way, so that is why I say the hatcheries are keeping up our whitefish in the river.

I remain yours respectfully,  
REMI LAFRAMBOISE.

Mr. PARKER.

PETITE COTE, ONT.

DEAR SIR,—In regard to whether the fish hatchery is a beneficial thing or not in regard to raising whitefish, one must look back at the last few years since this hatchery has been established. Taking it eight years ago, and comparing it year after year, any person who has paid any attention to the amount of fish caught, will see that last year (1892) was far ahead of any of the preceding years. A few years ago herring in the Detroit River were so plentiful as to be almost a nuisance to the fishermen, now they have become a scarcity. Fishermen who, five years ago, would throw the herring away, now can't get enough to supply the wants of the smallest fish dealers and peddlers, who would want a few hundred or a thousand at a time to supply the wants of their few customers. Persons who have taken an interest in the catch of fish cannot help but say, that although the whitefish are not as plentiful as they used to be, there would be still less if some method had not been taken to save the eggs, and we believe that the hatchery has been beneficial. Of course, some persons are prejudiced against it, but when you come to ask them to prove their arguments, they seem at a loss to answer.

I remain, yours truly,  
O. F. BONDY.

Mr. WM. PARKER.



PETITE COTE, ONT.

DEAR SIR,—I will give you my views in regard to the fishing in the Detroit River. I have fished in this river for the last thirty years. At one time I had but very little faith in fish hatcheries, but I am convinced now that they are doing good. My reasons for saying so is this : Years ago fish were very plentiful in the Detroit River, but they kept decreasing until they came down so it scarcely paid us to fish. But this last few years the whitefish has increased a little, but herring are becoming a fish of the past in the Detroit River. I think if it was not for so many whitefish fry being turned out of the hatchery, they would be as scarce as herring.

Yours truly,

Mr. PARKER.

ALEX. DUFOUR.

## 2.—APPENDICES CONTAINING REPORTS OF THE OFFICERS IN CHARGE OF FISH-BREEDING ESTABLISHMENTS IN THE SEVERAL PROVINCES OF CANADA, 1892.

### 1.—FRASER RIVER HATCHERY, PROVINCE OF BRITISH COLUMBIA.

*Report of the Officer in charge for 1892.*

SIR,—In submitting this report of the operations in connection with the Fraser River fish hatchery during the present year, 1892, I have the honour to state as follows:—

Owing to the mildness of the weather during the winter of 1891-92, the 6,485,000 eggs of the sockeye salmon which were laid in during the month of October, 1891, commenced to hatch out very early in the spring of 1892, so that on the 30th day of January it was considered advisable, in order to prevent overcrowding in the troughs, to turn out 400,000 eyed eggs, which were deposited in a suitable place in Pit Lake.

1. There were hatched and turned out during the spring of 1892, 6,000,000 fry.

2. The fry were turned out shortly after they had nearly absorbed the sac; they werethen in a strong and vigorous condition. They were planted as follows:—

27th February, in Stone River.....	700,000
5th March, Silver Creek, Pit Lake.....	700,000
9th do Pit Lake.....	800,000
11th do Harrison River.....	950,000
14th do do.....	1,500,000
17th do do.....	900,000
19th do Coquitlam River.....	50,000
	<hr/>
	5,600,000
Eyed eggs planted in Pit Lake.....	400,000
	<hr/>
Total.....	6,000,000

From the foregoing statement it will be seen that the loss of ova in the hatchery, from all causes, was only a fraction over 7 per cent.

3. As stated, the fry were removed from the hatchery in a healthy and vigorous condition; they were transported to the river, a distance of a third of a mile, in cans, from which they were turned into scows, or troughs, about 20 feet long,  $2\frac{1}{2}$  wide, and  $1\frac{1}{2}$  deep, having perforated ends to allow a free flow of water through them, and covers to prevent the fry from being washed out; the scows were towed by a steamer, having pieces of timber placed across its deck and projecting far enough over its sides to admit of the scows being securely made fast thereto at each end, in such a manner that the projection would take part of their weight and thus prevent them from being submerged by the current of the river or by the wash from the steamer, being thus secured they were towed as near to the place where it was intended to deposit the fry as the steamer could approach, they were then towed by row boats to the place chosen, when slides, arranged for the purpose, were opened in each end of the scows, and upon their being towed against the current the fry were slowly washed out.

In transporting the fry I adopted the only method available: the same as was used by my predecessor for a number of years.

From lack of appliances for transporting any considerable quantity of fry, by rail or steam-boat, when salt water has to be crossed, their distribution is practically limited to the Fraser River and its tributaries. I beg to suggest, therefore, that appliances of the most improved description, sufficient for the transportation of 500,000 fry at one time, be supplied for the use of the Fraser River Hatchery.

4. The hatchery, with most of its appliances, requires thorough repairs and renewals, in order to make it more suitable for another season's operations, as they are in such a state that partial repairs only cannot with safety be longer relied upon.

5. The necessary repairs would consist of the roof being reshingled, and the whole of the foundation work being renewed, namely, sills, beams and flooring, and as many of the posts and studs are decayed, when they rest on the sills, they would require to be cut and spliced, this together with new tables for the troughs to rest on, new troughs, tanks, flumes, and appliances generally; in addition to which it would become necessary to acquire the land upon which the dam is constructed. The approximate cost of the above services would be about \$2,000.

#### CAPTURING PARENT FISH.

6. The preparations for capturing and collecting salmon (sockeye) and their eggs for the season of 1891-3 are complete and in good order, at Morris Creek, and are giving satisfactory results.

During the whole period in which we were engaged in securing ova, the weather was very bad and the water in the creeks and lakes rose to a very unusual height, consequent on the heavy rains, and the snow which fell early in the season on the mountains and on melting caused an overflow of the creeks, thus retarding operations and rendering it difficult to capture parent fish.

On the 10th of November I closed operations at Harrison River, and brought down to the hatchery the last lot of ova, consisting of 152,000, making the number laid in for the season, 6,237,000—sockeye ova. Up to date there have been about the usual number of eggs picked out, and as the ova is in splendid condition at present, I feel safe in saying that the loss of eggs will not exceed 7 per cent of the number laid in. As you are aware, the run of sockeye salmon was not as large as usual in the Fraser River during the season of 1892, and from interviews and correspondence which I have had with persons of intelligence, who were in a position to observe and know, I have learned that the number of sockeyes which entered the creeks above Harrison was correspondingly small, but at Morris Creek, so far as the high water allowed me to form an opinion, there did not appear to be much, if any, diminution from the number there last season, which fact goes to confirm the opinion that the larger number of salmon which frequent that creek so late in the season, are due to the fry from the hatchery which have been planted year after year in the Harrison River. The present hatchery premises are somewhat inconvenient for receiving ova, and also for distributing the young fish, and I again take the opportunity to urge upon the department to take early steps to have a new hatchery built and equipped in time for next season's work, and I beg to suggest that it should have a capacity to accommodate 12,000,000 and upwards of ova. I also beg to recommend the location of any new hatchery at Silver Creek, Harrison Lake, or some other suitable site on the Harrison waters, to be approved of by the Superintendent of Fish Culture, where it could be operated in a much more satisfactory manner, and with less risk of damage to the eggs or fry during their necessary transportation.

A suitable site for a hatchery at Silver Creek would be granted to the department by the owners of the land as a gift.

7. I again desire to bring to your notice the fact, that there are no proper appliances belonging to the Fraser River Hatchery for transporting young salmon to any place, apart from the Fraser River and its tributaries. My only available method of transportation is by having the young fish towed, in scows, to the places where they are to be turned out, and as there are at present but two steamers on the Fraser suitable for the work, I cannot altogether avoid a feeling of anxiety lest anything should occur to render their services unavailable. I will, however, use all the foresight possible in order to avoid any disappointment in this respect, which might result in serious loss, should it occur.

I have the honour to be, sir, your obedient servant,

JOHN McNAB,

*Officer in charge Fraser River Fish Hatchery.*



## 2.—SYDNEY HATCHERY, PROVINCE OF NOVA SCOTIA.

*Report of the Officer in charge for 1892.*

SIR,—As only temporary officer in charge, I beg to report as follows:—

1. According to the books in the hatchery the number of fry sent out in spring of 1892 was 690,000.

2. All the fry sent out were in good condition, except a small lot that we intended for Margaree River, but, after taking them to the wharf for shipment, some of them appeared sickly in the cans; we, therefore, put them in Sydney River, which was near at hand. The fry was placed as follows:—

Sydney River.....	360,000
Trout Brook.....	100,000
Ball's Creek.....	100,000
Middle River.....	100,000
Hatchery Brook.....	30,000

Total.....	<u>690,000</u>
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3. All the fry sent out were sea salmon, and in prime condition, with the exception of those above stated; from whatever cause these appeared sickly I cannot positively say, unless it was from having too many in each can. The fry were shipped or transported to the various places, some by teams, those to Middle River went by steamer to Baddeck, and thence by teams, no railway transport being available to these places of deposit. I cannot suggest any improvement in the means of shipment at present, when the places where the fry are to be placed are not adjacent to railway communication.

4. The sum of \$15 would put the hatchery in condition to do for this year, but next year a whole new set of troughs would be required, whilst with some little repair to the present ones they would carry us over this season, but they will become entirely useless for subsequent seasons.

5. The buildings are in good condition and nothing further than what I have stated above will be necessarily required, except that the reception tank inside would need to be built up anew next year. In addition to the above expense a new lot of stove-pipe, and glass for windows are required. Cost of this about \$5.

6. For capturing fish for use of the hatchery we have at Sydney River two bar nets and one mesh net; at Salmon River, one bar and one mesh net; Upper Middle River, one bar and one mesh net; and at Lower Middle River, one bar and one mesh net. The nets that were at Margaree are worn out. The bar nets at the other stations are in fair condition, but the mesh nets are pretty well worn out.

By instructions from the department no parent fish have been caught for the hatchery this season, so that the hatchery will not have any eggs supplied for this season.

Your obedient servant,

W. J. DUNLOP,

*Officer in charge pro tem.*

## 3.—BEDFORD HATCHERY, PROVINCE OF NOVA SCOTIA.

*Report of the Officer in charge for 1892.*

SIR,—I have the honour herewith to submit my report upon the operations at this hatchery during the past year.

As previously reported, the number of ova secured and laid down in the fall of 1891, was 600,000. To this number was subsequently added a shipment of 350,000 from the Miramichi hatchery, as also the usual quota from the Ontario hatcheries.

The success attending the hatching of the salmon ova secured from the fish taken in our local rivers was not as good as usual, the cause of which I am unable to state.

The total number of fry hatched and turned out in the spring was 2,620,000.



These consisted of salmon, salmon-trout and whitefish, which were planted in the following waters :—

## SALMON.

Musquodoboit River, Halifax county .....	80,000
Indian do do .....	40,000
Nine Mile do do .....	40,000
Pennant do do .....	40,000
Stewiacke do Colchester county .....	80,000
Wallace do Cumberland county .....	80,000
River John, Pictou county .....	40,000
Annapolis River, Annapolis county .....	40,000
Round Hill do do .....	40,000
Gaspereau do King's county .....	40,000
Total salmon .....	<u>520,000</u>

## SALMON-TROUT.

Grand Lake, Halifax county .....	50,000
Hubley's Lake do .....	50,000
Harry's do do .....	50,000
Gaspereau do King's county .....	50,000
Mulgrave do Annapolis county .....	50,000
Milford do do .....	50,000
Total salmon-trout .....	<u>300,000</u>

## WHITEFISH.

Grand Lake, Halifax county .....	300,000
Hubley's Lake do .....	300,000
William's do do .....	300,000
Gaspereau do King's county .....	300,000
Beeler's do Annapolis county .....	300,000
Paradise do do .....	300,000
	<u>1,800,000</u>
Grand total .....	<u>2,620,000</u>

The usual success attended the distribution, and the young fish were placed in the several waters named in a perfectly healthy condition.

As permission was not granted me to secure a stock of salmon ova for this season's work, none was secured, and consequently the hatchery will not be in operation until the usual supply of eggs are allowed from the Newcastle and Sandwich hatcheries in Ontario.

Considerable repairs are required in and about the building and grounds. The roof of the hatchery has become somewhat decayed and leaky, and to prevent further decay, I would suggest that it be given two coats of roofing paint. The whole exterior would be much improved in appearance and preserved by being painted. Within the hatchery painting is also required, and one-half of the hatching troughs are so decayed and leaky as to be of no further service and should be replaced during the coming summer. A new fence around the grounds is also required, the present one, being sixteen years old, is badly decayed and of no further service; one of the outbuildings also requires reshingling, and the foundation of the partition between the hatching room and the living rooms requires repairs so as to prevent injury to the wall, which for want of support is settling.

In conclusion I might add that it is highly important to the working of this hatchery that some plan for securing supplies of ova for future operations be adopted, and that the necessary preparations for introducing such plan be undertaken at an early date.

Trusting the above may be satisfactory.

I am, sir, your obedient servant,

A. B. WILMOT.

#### 4.—DUNK RIVER HATCHERY, PROVINCE OF PRINCE EDWARD ISLAND.

(Not in operation.)

#### 5.—ST. JOHN RIVER HATCHERY, PROVINCE OF NEW BRUNSWICK.

*Report of the Officer in charge for 1892.*

SIR,—I beg leave to make the following report in connection with the operations carried on at the Rapide des Femmes Fish hatchery on the St. John River, N.B.

As already reported by me in the fall of 1891, there was a large number of salmon eggs collected in the Carleton Pond, St. John hatchery, and placed, apparently in good condition, upon the breeding trays in the hatchery. They did not do well. Having made a report of particulars to the acting superintendent on a previous occasion, I do not consider it necessary to repeat it here. On the 26th of February last, I received a consignment of salmon-trout and whitefish eggs from the Sandwich and Newcastle hatcheries in Ontario, in good condition, approximated at 500,000 salmon-trout and 2,000,000 whitefish. They were all carefully placed in position in the house, and they did remarkably well, and hatched out a large percentage of fry in the spring, which were planted in the several lakes throughout the different counties in the province bordering on the St. John River, and some also in the province of Quebec. Below will be found a tabulated statement of the different lakes and streams in which they were planted, and the number put into each. The long distances they had to be carried, in order to fill the numerous applications, necessitated a great deal of extra time and diligence. It is gratifying to report that the work was much appreciated by the parties who got the fish and the success experienced in carrying them safely to their destination.

Date.		Number.
<i>Distribution of Whitefish.</i>		
April 27....	Planted in Harvey Lake, York county .....	220,000
do 28....	do Lake George do .....	220,000
do 29....	do Foster Lake, Charlotte county .....	220,000
May 2....	do Oromocto Lake, York county .....	220,000
do 5....	do Lake Utopia, Charlotte county .....	220,000
do 10....	do Lake Yo Ho, York county .....	220,000
do 18....	do Harvey Lake do .....	220,000
do 27....	do Jones Lake, Carleton county .....	140,000
June 4....	do Portage Lake, Victoria county .....	140,000
.....	Different small distributions .....	60,000
		1,880,000
<i>Salmon-trout.</i>		
June 21....	Planted in Jones Lake, Carleton county .....	24,000
do 22....	do Harvey Lake, York county .....	32,000
do 25....	do Squatook Lake, Temiscouata county, P.Q. ....	24,000
July 1....	do Lake Disappointment, St. John county .....	32,000
June 28....	do Harvey Lake, York county .....	32,000
July 8....	do Lake Killarney do .....	24,000
do 15....	do Loch Lomond, St. John county .....	32,000
do 16....	do Portage Lake, Victoria county .....	8,000
		208,000

Date.		Number.
<i>Salmon.</i>		
June 29....	Planted in Oromocto River, Sunbury county.....	40,000
July 5....	do Loch Alva, King's county .....	40,000
do 12....	do do .....	40,000
do 20....	do Oromocto River, Sunbury county.....	40,000
do 25....	do Mispec River, St. John county.....	40,000
do 28....	do St. Croix River, Charlotte county .....	40,000
.....	do St. John River at the hatchery.....	50,000
		290,000
RECAPITULATION.		
.....	Whitefish, number brought down .....	1,880,000
.....	Salmon-trout do .....	208,000
.....	Salmon do .....	290,000
Grand total .....		2,378,000

I would respectfully suggest that in future when parties apply for fry, they should be required to fill up all particulars laid down in the blank applications, in this way we could form a proper idea of where the fry were required to go, the correct stations to stop at, the manner of conveyance and the distance from the railroad station to the waters where it was proposed to put the fry : by this means there would be no danger of passing the right station, it would put us in a proper position to know where and to whom we could wire, and order the proper means for transporting the fry on the arrival of the train to the place intended to put them, thereby avoiding delays at stations, which is so detrimental to the fry. If the department would insist upon all applicants doing this it would be of material benefit to all concerned, especially as applications for young fish are multiplying so largely annually. As soon as convenient after the young fish were disposed of from the hatchery, the work of cleaning and renovating the establishment was performed. The greater part of the interior of the house was painted, the main tank, troughs and breeding trays were all varnished, and the new metallic taps were put into their place, and all the other needed arrangements were completed. At present the hatchery and all the appliances, with scarcely any exceptions, are in good running order.

#### COLLECTION OF OVA.

On the 25th of last October, I was instructed by the Superintendent of Fish Culture to proceed immediately to Carleton, St. John, to act in concert with Mr. A. B. Wilmot, of Bedford, N.S., to strip the salmon which had been put in the reservoir there. On the 28th I left for Carleton with my son, M. F. McCluskey, and arrived there on the morning of the 29th and met Mr. Joseph O'Brien, the officer in charge, and consulted with Mr. A. B. Wilmot, who pronounced the fish ripe enough for stripping, when the work was commenced, and during the day sufficient eggs were got to fill three cases, which I took to the hatchery up river in company with A. B. Wilmot, leaving my assistant in charge of the salmon in the fresh-water tanks at Carleton. We arrived at the hatchery the same evening and placed the eggs in the troughs, in apparently good condition. Mr. Wilmot left the next day for St. John to complete the spawning of the fish. On the 3rd of November, Mr. Wilmot and my son arrived at the hatchery with the remainder of the eggs ; they were all successfully placed on the trays the same night, the total number of eggs obtained being about 885,000. As Mr. Wilmot had full charge of the whole operation of spawning the fish, he will, no doubt, make a full report of the work intrusted to him ; consequently it will not be required of me so to do. At present the eggs are not advanced far enough to give a decided opinion as to their fertility. The opportunity for the eggs to do well is unquestionably good. The season is mild, the



house is in good order with an excellent supply of good pure water, and strict attention paid to them night and day.

## INCREASE OF FISH.

Referring to the increase of fish in our waters attributable to artificial fish culture, it has ceased to be a question of doubt even with the sceptics and critics; in this section of the country, they all now readily admit that the fry put out from this hatchery has been the principal cause of the increase of fish in our rivers and lakes. This is said to be more applicable to the salmon than to any of the other fish put out from this establishment. This opinion or belief, as regards salmon, may be accounted for in a measure from the fact that the salmon being a game fish is consequently more acceptable to the sportsmen; nevertheless the other class of fish put out from this house are showing up pretty well, particularly the salmon-trout; quite a quantity were caught last fall in Portage Lake, a small body of water about five miles from the hatchery, and I am told that certain parties have resorted to that pernicious practice, of spearing them already. It will be absolutely necessary in order to establish and perpetuate the good results of artificial fish culture in this, and in all other localities, that protection should be given and illegal fishing stopped. There is not a fish warden either permanent or special, nor has there been any for a number of years on the entire length of the River St. John, in this county, excepting one for a few months last summer. The Tobique River is the only protected water in this part of the province, and as a result, the salmon are increasing there wonderfully both in numbers and size.

## REPAIRS.

Very little repairs will be required at this hatchery next year apart from those that are already ordered, but not yet finished. I would again respectfully suggest to having the hatchery grounds fenced in for several reasons that I have already named in a former report. The exterior of the hatchery is much improved by the coat of paint that it got last summer, but it exposes by contrast the weatherbeaten appearance of the roof. I have often suggested to have it painted, but for some cause it has been ignored—still it would be well to have it painted both for looks and durability.

All of the above report is most respectfully submitted.

CHAS. MCCLUSKEY,

*Officer in charge.*

## 6.—MIRAMICHI HATCHERY, PROVINCE OF NEW BRUNSWICK.

*Report of the Officer in charge for 1892.*

SIR,—I have the honour hereby to submit my report upon the operations in connection with this institution for the year 1892.

It will be seen, upon reference to my report for 1891, that there were placed in this hatchery during the autumn of that year, 1,625,000 native salmon ova. Although this number of ova was placed in the hatching troughs, still it would be impossible to successfully accommodate this number of fry. Therefore, in accordance with instructions received from the department, I shipped 350,000 during the month of March, to the hatchery at Bedford, N.S., leaving a balance of 1,275,000 in this establishment. Additional to this number, 100,000 salmon ova were received from the Restigouche hatchery, upon the application of the Honourable M. Adams, making the total number of ova to be hatched, 1,375,000. The most gratifying results were met with in the hatching of this large number of ova, and although the trough room afforded by this hatchery, is very limited, the fry were kept in a most healthy condition until the distribution season, when they were successfully planted in the following streams:—



North-west Miramichi River, from O'Shea's Beaches to "Camp Adams".....	400,000
Little South-west Miramichi, from Nohue's Crossing to Red Stone.....	300,000
Main South-west Miramichi, at Blackville, Boiestown and intermediate points.....	225,000
Sevogle River.....	160,000
Renous River.....	100,000
Stewart's Brook.....	25,000
North-west Miramichi, at "Camp Adams," North-west Falls and other points (Restigouche fry).....	100,000
Total.....	<u>1,310,000</u>

Adding 350,000 ova shipped to Bedford, it will be seen that the total output of salmon ova and fry from this hatchery during the past season amounted to 1,660,000, showing a very small loss during the period of hatching and distributing.

Owing to there being no railway accommodation on the North-west Miramichi or any of its branches, all of the fry planted in these streams have to be carried to the various planting grounds by horses and express wagons, which makes the work very tedious and much more difficult to perform than if they were taken by rail or boat. All the fry taken to remote points on the north-west have to be carried on lumber wagons, as there is not even a carriage road within twenty miles of these planting grounds. This slow means of travel causes the fry to be kept in the cans from twelve to eighteen hours, while, if they could be carried by rail, as on the South-west Miramichi, they would be liberated after only three or four hours. I might here mention that the high, narrow cans, formerly used, were far better adapted to our way of travelling than those low, wide cans ordered by the department during last winter. When these are driven any distance over a rough road the water soon gets thrown out of them through the top, while the high, narrow cans may be taken over the roughest road without scarcely any of the water being lost. These low, wide cans are decidedly the best for carrying fry by rail, but it is impossible to use them, for the reason mentioned, when carrying fry for a long distance over a rough road, where the chances for replenishing the water are not very good. Although quite a number of these were ordered for this hatchery, it was found that they did not suit for wagons, and the old cans had again to be brought into service, except when travelling by rail, when the new ones were used with the best results.

#### REPAIRS.

During the month of May an estimation of the cost of repairs needed for the dams and outbuildings was forwarded to your department, but before this proposed expenditure was sanctioned, the greatest flood that has been in this stream since the hatchery has been built swept away the dams of the supply and retaining ponds, as well as all other structures about the stream. This consequently caused a much greater outlay for repairs than was previously needed. Immediately after this damage was done, I reported that a necessary repairs could be completed for about \$400. The inspector of hatcheries at once visited the house and made a close estimate for rebuilding the dams and doing the other repairing, with the result that he reported that it could be completed for \$375. In the meantime, men were put to work at the dams, and although the time at our disposal was very limited, I am pleased to report that the work has been completed in a most satisfactory manner at a cost of about \$350. These two new dams, in the ordinary course of events, should serve the purpose for which they were built for at least ten or more years, with but few repairs.

Owing to this unlooked for outlay it was decided that all repairing not immediately required be postponed for another year. Therefore to have this house in good running order, there are several matters that need attention when the supply of ova now in the hatching troughs are distributed. Some of these requirements were noted by the inspector when here, chiefly among them being the repairing of the walls of the hatching

room, and the replacement of the old supply tank and several of the hatching troughs with new ones. The troughs will require to be removed from the room and the walls ceiled up to the bottom of the windows, as the plaster has fallen off, making it impossible to keep the room warm. The old supply tank is altogether past usefulness, as well as a great number of the troughs. I would recommend that in the future, these tanks and troughs be made of a more permanent material than wood, and think that when everything is considered it will be found that galvanized or sheet iron would be cheaper in the end than continually repairing those constructed of wood. Part of the floor in the hatching room will also require to be laid over new. The cost of these repairs to the inside of the house will be about \$200. The requirements for the outside will be the rebuilding of the coal and storage sheds, which will cost about \$75. A few more distributing cans, and also three crates (for conveying parent fish from the nets to retaining pond) will be required. These items will cost about \$50, making the total amount of \$325 outlay for those proposed improvements.

#### CAPTURING PARENT SALMON.

As the retaining pond was not in readiness to receive the parent fish, owing to the damage done by the summer freshet, operations for procuring them did not commence until a fortnight later than other years; consequently as large a supply was not expected, as was obtained last season. The nets and appliances were put in readiness and fishing commenced on 16th September, and carried on until spawning season set in on 25th October. A good supply was provided during the time the nets were in operation, and there is no doubt but that another hundred fish could have been secured, if it were possible to commence the work as early as other years. The fish were taken from the non-tidal parts of the North-west and Little South-west Miramichi, as formerly. The total number secured was 315. From the net on the North-west there were obtained 156 females and 90 males; from the Little South-west, 39 females and 30 males, making a total of 195 females and 120 males from which to collect the supply of ova for this season.

The total expenditure for obtaining this number of fish amounted to \$482.52, showing the average cost of each fish to be \$1.53.

I may state that, taking everything into consideration, the results of the past year's work have been of a very satisfactory nature. The salmon fishery of the Miramichi River and Bay is in the most healthy condition, and the working of the hatchery, as supplementary to the natural way of keeping up the supply of fish, is acknowledged by all practical men to be of the greatest value. The best proof of the success of the hatchery, is the fact that there are always large numbers of fish present in the river. Anglers and fishermen agree that the good results of the work are most plain to be seen.

It may also be stated that all the streams have been swimming with "grilse," during the past season. The men engaged to procure parent fish for the hatchery, report that it was almost impossible to keep their nets clear of these young salmon, so plentiful were they, and that they have liberated fully 2,000 during the time they have been at work. This is conclusive evidence that the supply of salmon for this river in the future is assured. In fact, the fishery is becoming of greater value every year, and the eagerness with which anglers and net fishermen grasp every opportunity to invest their money in fishing privileges and otherwise, speaks volumes. The good results of the work at this hatchery, which are so clearly apparent in the healthy condition of our fishery, is a most gratifying return for the labour and expense incurred in overcoming difficulties and obstacles of nearly every kind in the past.

#### COLLECTING EGGS, 1892.

As previously stated, the number of female fish obtained was 195. Excepting five fish that were slightly injured in the nets at the time of capture, this number delivered their ova in a perfectly healthy condition. The total number of eggs collected and placed in the breeding troughs was 1,425,000. These have remained in good condition and are



progressing favourably up to this date. During the past two years quite an amount of correspondence has been carried on and many suggestions made regarding the mode of capturing parent fish at this hatchery, and when Inspector Wilmot visited this establishment, last autumn, the matter was again revived. This is one branch of fish breeding that requires the closest attention, for the ultimate success or failure of a fish hatchery greatly depends upon the condition of the parent fish immediately previous and at the time of delivering her ova. Considering the importance of the question, concerning as it does the success of the institution, a few remarks may be allowed to enter here.

It has been put forward that the supply of parent fish could be obtained from net fishermen during the open season, and confined until spawning time. The result of the work as thus carried on at Restigouche has been cited as an example of the success of the plan. It may be here mentioned, as an offset to this citation, that a great difference in the rivers, not in general character, but in the more minute details of formation may exist, and operations that could be successfully performed on the one might not at all be applicable to the other. For instance, although the fish might be captured by the same methods on both rivers during the open season, yet a great difference might necessarily exist in the way of retaining them from the time of capture until spawning. Thus, while it would be feasible to convert some small natural channel on the Restigouche into a retaining pond, such a plan would be impossible here owing to the absence of these small inlets and channels along the rivers. Then recourse would have to be had to some artificial way for the retention of the fish. Every part of this river has been examined and no situation that can afford accommodation for two or three hundred salmon during the summer months can be found unless we go above tidal waters, into the rapids, where net fishing is prohibited. Then if the department were to grant special permits to operate nets up there for the purpose of procuring parent salmon, the anglers would immediately object and set up a contention that the department was encroaching upon their rights. Thus, the only alternative would be to build an artificial reservoir, such as a large floating crate.

Then the fish could not be procured from the fishermen without they were granted special permits to operate nets of a smaller mesh than is allowed by law, otherwise they could not supply any fish that would not be more or less injured, nearly every fish that enters their nets being caught by the gills or "meshed." This alone is enough to condemn the fish received from fishermen as being unfit for breeding purposes, for it will be readily seen that fungoid disease would sooner or later result from the injuries to the gills of the fish. Then again, if special license were granted two or three fishermen to operate small-meshed trap-nets, the other fishermen on the river would seize this as an opportunity to raise a contention that they were being discriminated against. And again, if two or three stands were put out and operated by our own men, all the fishermen would raise the same contention.

These are the plain facts of the case regarding the taking of salmon during the open season on this river. Either the rights of anglers would be encroached upon, or the fishery regulations would have to be overstepped, in order to procure healthy salmon from the fishermen in the tide-way.

Either of these actions would raise disturbance, which must be avoided as much as possible, and the most conciliatory and agreeable method to all parties be employed. Under the present system the fish are taken by specially arranged nets, in which it is impossible for a fish to be hurt, unless through carelessness. But the arrangement of these nets causes no hard feelings in the minds of the fishermen, as it does not in any way interfere with them, the close season having set in and their operations suspended.

Another matter which must yet be considered is, will the results be as satisfactory from the taking of parent fish during the open season as they would if the fish were captured but a short time previous to spawning? By taking the fish during the summer months in tidal waters it becomes necessary to keep them confined therein for two and three months, while, on the other hand, if they are taken in the autumn from non-tidal waters the period of confinement is limited to only a few weeks. Now, the question which suggests itself is: Whether it is natural to expect as good returns from salmon that have to be confined three months as from those

that are only confined a few weeks? Can it be expected that fish, the nature of salmon, can bear confinement in a wooden crate or any other inclosure for such a length of time and yet remain in a perfect healthy condition? Those are questions of vital importance, and should receive every consideration, for upon the health of the parent fish depend the results of the work.

## PROTECTION.

There is one matter which deserves the closest attention at the hands of the department, namely, an equal protection to all the streams and tributaries. The north-west branch of the Miramichi, on which this hatchery is situated, is well and efficiently protected from all kinds of poaching, but the south-west branch and other tributaries, that are not under the control of the same officers, do not receive the attention that they should; in fact, are almost altogether neglected. There must be some remedy for this. To protect one branch of a river and leave the others seems to be a useless expenditure. There may be many obstacles in the way of giving this portion of our river good protection, and the residents have now become so used to doing as they like that it may be an impossibility to altogether stop poaching, still it would not be a great difficulty to make an improvement on affairs as they now exist. It is a matter that will not bear inspection to have the closest protection and a hatchery on one tributary, and on another to have this work greatly injured and practically destroyed.

Submitting all of the above for your consideration,

I am, sir, your obedient servant,

ISAAC SHEASGREEN.

## 7.—RESTIGOUCHE HATCHERY, PROVINCE OF QUEBEC.

*Report of the Officer in charge for 1892.*

SIR,—I beg to submit my annual report on the operations of the Restigouche hatchery for the past year.

One million four hundred and sixteen thousand five hundred eggs were obtained in the fall of 1891, from which were hatched 1,340,000 fry, and distributed in the various waters as follows :—

June 21 to 25, Kedgwick River.....	250,000
do Upsalquitch River.....	200,000
June 27 to 30, from hatchery to the mouth Kedgwick....	580,000
July 1 to 5, Metapedia River and Lake.....	200,000
July 5, Parker Lake.....	10,000
April 15, eyed eggs transported to Miramichi establish- ment .....	100,000
Total .....	1,340,000

I personally conducted and superintended the planting of the major portion of those fry, which were nearly all conveyed to their destination, in floating crates, in fine condition, and the little fish being nearly two months old when liberated, were large and strong, and quite capable of taking care of themselves.

The retaining pond at Tide Head was reconstructed in early spring and made ready for the reception of the fish, and the two government nets placed in fishing order as soon as the freshet in the river would admit. The first fish taken in those nets was on the 9th and 14th of June respectively, and as the fish had entered the river and were being caught in the nets at Dalhousie as early as the 15th of May and 23rd with the fly at Metapedia and Dee Side, is conclusive evidence that the first and largest run of fish had passed by before the nets in the vicinity of Tide Head could be set out. And the government Pitt's Creek net being carried away by the corporation boom coming adrift just when placed in fishing order, and no instructions given to extend the



wings of the trap-nets and keep them set during close time as in former years, has consequently decreased the catch of parent fish.

The Murray Island net captured.....	94
Pitt's Creek net captured.....	57
Purchased from M. Adams .....	63
do G. Duff (2 stations).....	47
Total .....	261

A few of these fish died from fungus after being placed in the retaining pond, being injured by the nets, leaving a total of 240 spawning fish—125 females and 116 males—yielding 1,110,000 eggs, or 8,880 average to each female. Preparations for gathering in the fish began on the 19th of October and spawning on the 21st, continuing the work until the 5th of November, and all the fish stripped were again liberated. Many of the female fish were small, proving they were the second and last run of fish to enter the river—perhaps the first year in from the sea to reproduce their species. The eggs are in a fine condition, and I anticipate a small percentage of loss.

#### THE RETAINING POND AT TIDE HEAD.

As this pond has to be reconstructed every spring and removed again in the fall, I would suggest that instead of the present wire netting that has been used as a trial and found to be unsatisfactory and unsafe for the impounding of salmon, and liable to break away at time of freshet, it be replaced with gates or pannels, constructed of wood, about 10 feet long by 6 feet deep. These would be easily placed in position and guarantee the safety of the fish, and cheapen the reconstruction of the pond in the spring.

If the same system of capturing parent fish at Tide Head is to be pursued, some new nets and stakes will be required and the old nets repaired for next season's operations; this, including the gates, will cost about \$350.

#### THE CAPTURE OF PARENT SALMON.

On this depends the entire success or failure of the whole work of fish culture here, and I may say capturing the parent fish is the greatest obstacle to contend with, not only at the Restigouche hatchery, but the same difficulty presents itself at all the establishments in the Maritime Provinces. It is unreasonable to suppose the two short nets now in use for taking parent fish at Tide Head, are capable of catching 400 or 500 salmon, the required number for stocking the hatchery to its full capacity. Our nets are set above all the others with one or two exceptions, and are subject to freshets and lumber running at the early fishing season, and very often the major portion of the fish have passed up river before the nets can be placed in fishing position. In order to increase the supplies of parent fish I would propose leasing a few more of the licensed fishermen's stations in the vicinity of Tide Head, and fishing them with our own men and appliances, or else carry into effect the inspector's scheme of purchasing the fish from the licensed netters at Dalhousie and retain them there in large crates in the salt water for a short time, and afterwards transfer them to the present retaining pond at Tide Head. If this could be successfully carried out, sufficient numbers of fish could be obtained for the stocking of other hatcheries than the Restigouche.

#### VISIBLE RESULTS OF THE ARTIFICIAL WORK.

A number of the young salmon bred and grown at the hatchery until four years old, were preserved in alcohol and sent to Ottawa for the Chicago Exhibition. These fish were twelve inches in length and about half a pound in weight. Hundreds of them were to be seen in the little pond at the hatchery during the summer months.

Also the Upsalquitch River, a tributary of the Restigouche, furnishes authentic proof of the results of planting the fry bred from the large Restigouche fish in this river. Adult salmon were never known to ascend the Upsalquitch River before the 1st of July, and then only few in number with an average of about ten pounds each, but

since stocking it with fry for the last ten or twelve years from the large Restigouche salmon—a very gratifying change has been brought about, as large thirty-pound fish are now caught in the Upsalquitch with the fly as early as the 24th of May, and giving as fine sport to anglers as the fish taken in the main Restigouche. Last season some twenty fine salmon averaging twenty-four pounds were taken with the fly on the Upsalquitch River between the 23rd of May and the 10th June. This pool was sold a few days later for some \$3,000. A few years ago it would not bring three thousand cents. In going up to the forks of this river during the month of June last, several large thirty-pound salmon were seen in several of the pools.

Complaints were not heard from either anglers or netters last season. The latter made a fair average catch, while many of the anglers scored 100 salmon to a rod. The fish ran early, when the water was high and cold and the weather was favourable for angling. This condition of the river usually gives the largest scores to be made for the time among the anglers, no matter whether the run of fish may be scarce or plentiful. Several of the parent fish that were stripped and tagged from the reservoir in previous years were caught by anglers during the past season.

The officers on the river and scowmen are unanimous in saying that all the pools were well filled with breeding fish during the autumn.

The hatchery with all its appliances is in a satisfactory condition and no repairs are needed at the present time.

I am, sir, your obedient servant,

ALEX. MOWAT,  
*Officer in charge.*

## 8.—GASPÉ HATCHERY, PROVINCE OF QUEBEC.

### *Report of the Officer in charge for 1892.*

SIR,—I beg to submit the annual report of operations connected with the above hatchery during the past year.

Work in Dartmouth River was commenced on 16th May, when preparations were made for the summer, scows and flats being repaired and other necessary work accomplished.

The sphere of our work embraces the three rivers, St. John's, York and Dartmouth, all flowing into the Gaspé Bay.

Our operations are connected solely with salmon fry, all of which were liberated in good condition.

### COLLECTING EGGS, 1892.

The department nets were set in the Dartmouth River on 7th and 8th June, and fished until 16th August, taking 74 parent salmon. According to instructions 23 more were purchased from Wm. Stanley, at the current price of \$2 each, thus making in all 97 fish. Of these, 94 were taken from the reservoir and spawned on 5th and 6th October, only three having died in the pond during the summer months. These 94 comprised 49 females and 45 males.

The spawning continued from 7th October to 4th November, and yielded as follows:—

22 females averaging	15,000 each	330,000
15 do	14,000 do	210,000
12 do	12,000 do	144,000
		<hr/> 684,000 <hr/>

This total of 684,000 eggs were placed in the hatchery in good condition.

## DISTRIBUTION OF FRY.

The planting was commenced on 20th June and completed on 14th July.

The following statement shows the number of salmon fry bred and planted during the year, also the rivers in which they were put.

St. John	River	200,000
York	do	50,000
Dartmouth	do above falls	500,000
do	do below do	215,000
		<hr/> 715,000
Total fry		<hr/> 965,000 <hr/>

The transportation of the 500,000 fry above the falls in Dartmouth River entailed considerable difficulty and cost in carrying out the work, but in the end they were most satisfactorily planted.

## HATCHERY.

The hatchery is in first-class condition. Troughs were varnished, and, subsequently, the interior of the hatchery was painted, cleaned and aired. The appliances were also fully prepared for the winter's labour of hatching.

On the 15th of August, I had the pleasure of a visit from the Inspector of Hatcheries, who recommended some repairs and improvements to the hatchery, and forwarded instructions to have some of the work done. This was done on 20th November, and consisted of repairs to the outside of building and the erection of a new porch at front of hatchery. The painting was deferred until spring.

I received instructions to purchase a coal stove and pipes for hatchery. This could only be done at the very latest stage of navigation.

## APPARATUS.

We have in stock 18 new iron taps and 200 new breeding trays. The new trays arrived too late for this fall's use. The 15 screens for the troughs and 12 new distributing cans are authorized but have not yet arrived.

On the 15th of September, Joseph Patterson and Wm. C. Davis left for the upper waters in Dartmouth River to ascertain the probable number of parent salmon there might be in the river. They travelled about 35 to 40 miles, part of which was accomplished on foot. They discovered about 100 salmon. It is my opinion the first run of fish had gone a greater distance up stream before the water got so very low.

The department net has been set this year as before; anglers are well satisfied with it. The close season was observed.

The St. John, York and Dartmouth rivers are well stocked with salmon in their upper waters.

So far as I can ascertain the number of salmon captured this season in gill-nets, on the sea-coast, and at the mouth of the Gaspé River is equal to last year.

If it is the intention of the Fishery Department to adopt the same method of capturing parent salmon for this hatchery next year, I would strongly recommend an advance to Wm. Stanley of 25 cents over the average price, on each fish averaging 25 lbs. This would, no doubt, induce him to allow me the use of his fishing station during the high waters in the spring. When the freshet is low and there is still water, the salmon will not enter in traps of small mesh nets.

I am, sir, your obedient servant,

HENRY DAVIS,

*Officer in charge.*



## 9.—TADOUSSAC HATCHERY, PROVINCE OF QUEBEC.

*Report of the Officer in charge for 1892.*

SIR,—I have the honour to submit my report of the operations at the Tadoussac hatchery during the past season. As already reported, from the salmon eggs obtained in the fall of 1891, 624,000 were hatched and planted in the following waters :—

St. John River.....	168,000
Baude River, Perron's Stream.....	60,000
Baude River, Chisholm Stream.....	276,000
Mowat's Lakes.....	96,000
Hatchery Lake.....	24,000
	<hr/>
	624,000
	<hr/>

The above numbers of salmon fry were all planted in healthy condition. The Chisholm Stream, which received the largest quantity, is the outlet of the lake of the same name and discharges its waters in the Baude River ; this last named river runs into the St. Lawrence, three miles below the hatchery here. The Chisholm Stream has pure clear, with abundant flow of water, and is well adapted to receive a large number of salmon fry.

As usual, our two departmental nets were set in May and caught 356 salmon. Of that number 318 were kept in the pond for breeding purposes—210 females and 108 males. The 210 females were all of large size and gave 2,250,000 eggs. These are now on the trays, looking remarkably well, the embryos plainly visible now. By the new arrangement, we have a good supply of water, it passes through the fifty troughs holding the 2,250,000 eggs. As the critical period for the eggs is passed, I expect to have a large lot of fry for distribution in June next. It will be found necessary to employ as usual, the tug boat of Messrs. Price Bros. & Co. for transporting the young salmon to the Upper Saguenay. A small auxiliary hatchery at the head waters of the Saguenay would be a great help. I would recommend to use the windows, doors and some apparatus of the old building to put up a small auxiliary hatchery at the head waters of the Saguenay River, thus saving a large amount of money in the distributions in the spring; and another good reason for doing so, we have only very short time for making the distribution, as the water of the lake gets warmer quicker than in a running river.

The state of our new hatchery is very good and requires nothing for the present.

The improvements required outside of the building is the change of the five-inch iron pipe for one of eight inches, which the contractor of the new building is obliged to put up ; and I would recommend this to be done next spring as soon as the salmon fry distribution is over, by the end of June next.

The other improvements very urgent are the repairs to the dam of the salmon pond, leaking all over : (1) the deals forming the dam are all rotten and require to be renewed. This work must be done at the end of March, if fine weather, or in the first days of April, when the water is very low. It will require 300 deals and probably a few cross beams. Such repairs, with the workmanship, will cost about \$300, as we have to dig in the ground very much for one end of the deals.

(2) Another improvement is the raising of the dam of the lake by about two feet more to get sure of a good supply of water during winter, as our winters down here are generally cold and dry. I believe that repair could be done for \$100.

(3) The third improvement required will be the fencing along the road from Mr. Urquhart's property down to the stream of the lake, at a cost of \$50.

The spawning of the fish began on the 18th of October and ended on the 9th of November, without any loss of parent fish. Instead of keeping the parent salmon in scows, a small pen was fitted up in the salmon pond to keep them in, as recommended by the Superintendent of Fish Culture. As already reported on a previous occasion, the dam of the salmon pond requires some repairs—it is leaking all over. The fencing of the



ground of the new hatchery is also required. From the small number of eggs picked out at the present time, the percentage of loss will not exceed five per cent at the time of hatching.

I have the honour to be, sir,

Your obedient servant,

L. N. CATELLIER.

## 10.—MAGOG HATCHERY, PROVINCE OF QUEBEC.

*Report of the Officer in charge for 1892.*

SIR,—I herewith forward the report called for regarding the Magog fish hatchery for the year 1892.

There were 2,400,000 small fry turned out during the spring of 1892. The eggs from which these fry were hatched were obtained from the Newcastle and Sandwich hatcheries in Ontario.

Of the above 1,500,000 were whitefish and 900,000 were salmon-trout fry. They were planted in the following named sheets of water :—

*Salmon-trout fry.*—Lovering Pond, People's Pond, Massawippi Lake, Megantic Lake, Orford Lake, Brome Lake, Memphremagog Lake.

*Whitefish fry.*—Massawippi Lake, Megantic Lake, Memphremagog Lake, Orford Lake, Brome Lake.

The fry (both salmon and whitefish) were planted in the above named sheets of water in a healthy condition. About one-half of the distribution was by rail, and the balance by teams. In all cases an expert accompanied the fry to their destination, who, by frequent aeration and renewing of water, and the aid of ice to regulate the temperature, no difficulty was experienced in their transportation by rail or teams, and in depositing them in an active and healthy state.

When possible, a cool and cloudy day was chosen to transport those going the longest distance, thus avoiding the loss which sometimes attaches to putting them out in hot weather.

By referring to my letters, you will notice that I reported the hatchery in bad condition, and, in consequence, by the orders of the Department of Marine and Fisheries, it is now being put in good shape to meet all requirements. Your inspector, on his tour of inspection, saw the necessity of making the improvements and repairs, and recommended the same to the department to be done.

A full description of the work done in repairs, and the approximate cost were all explained in detail, are now before the department, to which I beg leave to refer for fuller information.

The former system of capturing and collecting parent fish and collecting fish eggs in Memphremagog Lake has been abandoned, and we now depend upon being supplied from the Newcastle and Sandwich hatcheries, as it is much less expensive getting the ova from the fish to be taken in the larger waters like Huron and the Georgian Bay.

A. H. MOORE,

*Officer in charge.*

## 11.—NEWCASTLE HATCHERY, PROVINCE OF ONTARIO.

*Report of the Officer in charge for 1892.*

SIR,—I have the honour herewith to submit a report of the fish cultural operations carried on at the Newcastle establishment during the past year.

The following schedule will show the points of distribution, also the number and kinds of fry placed in each locality last spring.

*Salmon-trout.*

Lake Couchiching, Orillia .....	100,000
Georgian Bay, Midland .....	200,000
do Wiarton .....	300,000
do Collingwood .....	100,000
Bay of Quinté, Belleville .....	100,000
Lake Ontario, Toronto .....	100,000
do Cobourg .....	100,000
do Newcastle .....	100,000
do Picton .....	100,000
Lake Simcoe, Barrie .....	100,000
Sturgeon Lake, Victoria county .....	60,000
Ball's Lake do .....	10,000
Manatowaba Lake, Parry Sound .....	50,000
Owl Lake do .....	50,000
Bond's Lake, Aurora .....	100,000
Spring Lake do .....	100,000
Lake Ontario, Toronto .....	100,000
Total .....	<u>1,770,000</u>

*Whitefish.*

Lake Ontario, Picton .....	300,000
do Toronto .....	250,000
do Cobourg .....	300,000
do Newcastle .....	400,000
Bay of Quinté, Belleville .....	250,000
do Trenton .....	300,000
Georgian Bay, Midland .....	500,000
Lake Simcoe, Barrie .....	250,000
Lake Couchiching, Orillia .....	250,000
Total .....	<u>2,800,000</u>

*Speckled Trout.*

R. A. Rikey, Shelburne .....	55,000
D. A. Hyslop, Ancaster .....	6,000
Z. A. Lash, Toronto .....	25,000
Geo. Henwood, Brantford .....	10,000
Jos. Philp, Dundonald .....	4,000
E. A. Dalley, Hamilton .....	10,000
Shaw & Shaw, Walkerton .....	10,000
A. W. Alexander, Guelph .....	5,000
David Gilmore, Trenton .....	50,000
H. A. Ward, Port Hope .....	5,000
H. I. Aldous, Georgetown .....	4,000
H. M. Jones, Marmora .....	3,000
Thos. Ford, Credit Forks .....	18,000
Wm. Smith, Waterdown .....	8,000
H. Crozier, Orangeville .....	10,000
Thos. Frazer, Norwood .....	3,000
F. Birdsall, Birdsalls .....	2,000
W. W. Pope, Belleville .....	15,000
D. McLean, Strathroy .....	3,000
Capt. Duncan, Morganston .....	2,500
Cyrus Teal, Wooler .....	5,000
Total .....	<u>253,500</u>

Schedule showing total number of fry and semi-hatched eggs distributed from the Newcastle hatchery during spring of 1892 :—

*Fry.*

Salmon-trout fry .....	1,770,000
Whitefish fry .....	2,800,000
Speckled trout .....	253,500
Salmon-trout eyed ova shipped to Magog, Que. ....	1,000,000
do do do Bedford, N.S. ....	500,000
do do do Grand Falls, N.S. ....	500,000
do do do Ottawa .....	1,000,000
Speckled trout do do do .....	100,000
Total distribution from Newcastle .....	<u>7,923,500</u>

I am pleased to be able to say that the fry were in good condition when planted, notwithstanding the very long distance which some of them had to be conveyed to their destination.

The hatchery is in good working order at present, having been repaired and repainted last summer; there is, therefore, nothing required at present with the exception of some slight repairs to the tanks which contain the spring water, one of which will have to be renewed before it will be safe to use it next spring.

In February, 1892, there was laid down in this hatchery 700,000 speckled trout eggs, which were purchased from parties in Wisconsin, U.S., they appeared to do well until after they were hatched out, but did not thrive or do well after, consequently a proportion of them died, thus accounting for the small distribution of speckled trout as shown in this report. No blame can be attached to any of the officers of this hatchery, as Mr. Hanson, from whom the eggs was purchased, acknowledged afterwards that they were a bad lot.

Our staff returned from Wiarton on the 27th November, where they had been engaged from the 4th of October setting nets and gathering spawn (under the supervision of Mr. Chas. Wilmot) for the Newcastle and Ottawa hatcheries, as well as many of the other establishments in the lower provinces. Although there was very rough weather to contend with during the whole of the months of October and November, there was gathered 9,725,000 salmon-trout spawn, which is now laid down in this hatchery, with the exception of the supply for the Ottawa hatchery, which was sent direct from Wiarton on the Georgian Bay to their destination there.

The present arrangements at Wiarton are fairly satisfactory for gathering salmon-trout spawn. But some little expense will be required next summer to put the nets and appliances in good working order for next season's operations, and more especially if it is decided to take eggs in any larger quantities.

There were taken at Wiarton during the past season, 9,725,000 salmon-trout spawn; there was shipped to the Ottawa hatchery, 1,250,000, which now leaves laid down in the Newcastle hatchery, 8,475,000, all of which are doing well and appear to be in first-class condition.

Attached will be found the certificates with the signature of some eighteen fishermen from the Belleville district on the Bay of Quinté under the supervision of Fishery Officer W. R. Clarke, expressing the views they hold as to the success which has resulted from the several plantings of young fish in the Bay of Quinté bred at the Newcastle hatchery.

All of which is respectfully submitted.

JOHN KENEFICK,  
*Officer in charge, Newcastle Hatchery.*

## 12.—SANDWICH HATCHERY, PROVINCE OF ONTARIO.

*Report of the Officer in charge for 1892.*

SIR,—As it is the custom for the officer in charge of this institution to make a report of his operations during the year, I herewith present it.

Last year the report showed that there were gathered and laid in the hatchery 75,000,000 whitefish eggs, which, after leaving the incubators produced 58,500,000 young fish, and eyed eggs which were disposed of as follows :

Eyed eggs to Newcastle .....	3,000,000
do Ottawa .....	5,000,000
do St. John's .....	2,000,000
do Bedford .....	2,000,000
do Magog .....	2,000,000
	<hr/>
	14,000,000

## YOUNG FRY.

Point Edward, Lake Huron .....	2,000,000
Robert's Landing, River St. Clair .....	1,000,000
Mitchell's Bay, Lake St. Clair .....	2,000,000
Peaches Island do .....	1,000,000
Belle Isle, River Detroit .....	1,000,000
Fighting Island do .....	4,000,000
In bay below Fighting Island .....	3,000,000
Stoney Island .....	2,000,000
Bois Blanc Island .....	2,000,000
In Lake Erie below Bois Bay .....	2,000,000
Pigeon Bay, Lake Erie .....	2,000,000
Bar Point do .....	2,000,000
Colchester do .....	2,000,000
Kingsville do .....	1,000,000
Leamington do .....	1,000,900
Port Stanley do .....	1,000,000
Hamilton, Lake Ontario .....	1,000,000
Toronto do .....	1,000,000
Niagara do .....	1,000,000
In river at hatchery .....	12,000,000
	<hr/>
	58,500,000

The eggs were very healthy when landed at their destination, and the reports therefrom were good. The young fry when placed in the waters were in a healthy condition and the places selected were the very best points that could be thought of, being good feeding grounds for the young fish.

The collection of whitefish eggs for the season of 1892 was much larger than the previous years, the number being 110,000,000; they were collected at the following grounds :—

Fighting Island .....	85,000,000
Bois Blanc Island .....	25,000,000
	<hr/>
Total .....	110,000,000

These eggs were placed as follows :—

Sandwich hatchery .....	95,000,000
Newcastle do .....	3,000,000
Ottawa do .....	6,000,000
Detroit River .....	6,000,000



## THE CATCH OF FISH IN DETROIT RIVER.

The reports of several of the fishermen is to the effect that the run of whitefish is on the increase, and from the knowledge obtained it has been very good this year. Appended to this report are some opinions received from a number of the fishermen.

## PICKEREL.

The hatching of pickerel was discontinued this year on account of not being able to secure enough eggs to make it worth while for the expense that would be incurred for the number of eggs we might secure. In order to make a success in breeding this fish, something must be done to secure grounds in a neighbourhood where they are plentiful, and hire the fishermen to secure the fish and hold them in the pound-nets until we are ready to take the ova from them. In this way we will have the handling of the fish by paying them a stated amount per hundred, and then we would not be dependent upon others in getting supplies as formerly. The best grounds to carry out this plan is at Point Edward, where the pickerel fishing is good. The setting of nets in Lake St. Clair has been an expensive failure, and it would not be advisable to continue it in the future. The same applies to the River Thames also.

## IMPROVEMENTS.

A great improvement could be made for the transportation of the young fry to the different points where they are to be placed by having a car placed at our own disposal, where we would have sufficient room to properly care for the fry when taking them long distances. When taking the fry in the baggage cars, as at present, we often have no room to take proper care of them on account of the quantities of other baggage, and consequently there is very little room left at times for the fish cans. A car of our own would greatly facilitate the work in this line.

Now that the department has taken the river fisheries into its own hands, to make the work complete there should be placed at the disposal of the officer in charge of the hatchery, a steam tug or boat for the purpose of quickly transporting the eggs gathered from the different fishing grounds down the river to the hatchery, and also for properly distributing the young fry in the lakes and rivers. This would be a great addition and saving to the workings of this hatchery, and would cost about \$1,000. It would also be of great service to the fishery officers in the district for their inspection and guardianship of the waters when not in use for work at the hatchery. As it is now a great deal of trouble and expense is incurred in getting a steam-boat to convey the eggs and fry to where we wish to place them.

The instructions given last year to repair the piers on Fighting Island were carried out. Some of the piers were rebuilt, and new fishing shanties had to be erected and furnished. A new outfit of boats and nets, &c., were purchased and everything connected with the undertaking worked remarkably well.

The contemplated repairs on Bois Blanc Island, such as fixing up the old Atkinson dock and building a boat to convey the fish from one side of the island to the other were not made, being directed otherwise. Some fish pots were put in the river to hold the parent fish, but they proved a failure owing to the strong current; it will therefore be necessary to revert to the old plan which was adopted formerly. This will cost about \$300.

There should be built at the hatchery a boat shed in which to store away all the fishing boats and fishing gear, so that they may be properly cared for. This would cost about \$100. This shed is much needed for the preservation of these goods.

Everything is working admirably at the hatchery. The eggs are in fine condition, and it is expected to turn out a larger percentage this year than ever before in the history of this house.

All of which is respectfully submitted.

WM. PARKER.

## 13.—OTTAWA HATCHERY, PROVINCE OF ONTARIO.

*Report of the Officer in charge for 1892.*

SIR,—I beg to submit my annual report of the operations carried on at the Ottawa hatchery for the year 1892.

As usual in January last there were received from the Newcastle hatchery 1,100,000 of salmon-trout eggs, and in February were also received 5,000,000 of whitefish eggs from the Sandwich hatchery. All the eggs from both places were in first-class condition.

The small fry came out all strong and healthy, and were successfully deposited by Mr. Veale, officer in charge of the fisheries exhibits, in the following places :—

## SALMON-TROUT.

Lakes Nos. 6 and 7 (Joliette), Que.....	54,000
Lavant Station.....	36,000
Rideau Lake, Portland, Ont.....	180,000
Charleston Lake, Ont.....	198,000
Charbot Lake, Ont.....	126,000
Meache's Lake, Que.....	108,000
Deschesne Lake (Aylmer), Que.....	180,000
Wiltsie Lake.....	72,000
Meache Lake.....	45,000
Total.....	<u>999,000</u>

## WHITEFISH.

Consecon Lake.....	795,000
Picton (Long Point).....	265,000
Belleville, Bay Quinté.....	1,000,000
Deschesne Lake.....	1,000,000
Meache's Lake.....	850,000
Total.....	<u>3,910,000</u>

On the 2nd of November last, I received orders to go to the Newcastle hatchery to take charge whilst the officer in charge and his men were away collecting eggs at Marten, and on the 14th of November I returned to Ottawa, bringing down with me 1,000,000 salmon-trout eggs, which were carefully laid down in the troughs at the Ottawa hatchery. These eggs were very good and are doing well so far. On the 7th December I received about 5,000,000 of whitefish eggs from the Sandwich hatchery, but being the last lot of eggs collected this season, the weather being very cold and stormy, these eggs are not so good as usual, and a new supply will be obtained to make up any losses which may take place.

I am glad to say the Ottawa hatchery will need no repairs for the next season's operations, everything being in perfect order.

The hatchery, this year, has been visited by over twenty thousand people and all were delighted at seeing millions of salmon-trout and whitefish hatching out and swimming about in the tanks outside in the yard.

I have the honour to be, sir,

Your humble servant,

JOHN WALKER,

*Officer in charge.*

## 14.—BAY VIEW HATCHERY, PROVINCE OF NOVA SCOTIA.

*Report of the Officer in charge for 1892.*

SIR,—I beg to make the following report of matters pertaining to the Bay View lobster hatchery.

1. The quantity of lobster fry hatched and turned out during the season of 1892 was 63,500,000.

2. Lobsters from 2 to 6 days old were placed along the coast, from one to two and a half miles from shore, between Arisaig, county of Antigonish, and Pugwash, county of Cumberland, N.S., about one million to a mile.

3. The fry were planted daily between the 18th June and the 6th July, both days inclusive, principally by steamer.

By having a good steamer of speed not less than 10 miles per hour, fry can be distributed from this hatchery along the coast of Prince Edward Island, from East Point to West Cape.

4. This hatchery is in a good state of repair. A new 6-inch salt water iron suction pipe has been procured, and a solid brick engine bed has been built. The wharf which was damaged by ice last March is now being thoroughly repaired and strengthened.

5. One new trough to receive the fry is required in addition to those in use. The screens between the floor troughs require to be renewed and some six new ones will also be needed.

Six new galvanized iron pans are required to take the place of the old tin pans, rusted out.

About 50 feet of 1-inch hose to conduct fry from the waste to the floor troughs also required. The cost of the above will be about \$60.

Fitting and laying down suction pipe and repairing pump and inspirator will cost about \$25. Repairing fresh water tank, and perhaps some trifling jobs about pipe, \$15, making in all about \$100.

6. About one-half of the ova required for next season's operations can be obtained at the factory of Messrs. Burnham & Morrill, within 300 feet of the hatchery.

It will be necessary to employ a steamer for a short time to collect ova from Pictou Island and vicinity, say for five or six days, and for about fifteen days to distribute fry.

I am, sir,

Your obedient servant.

ALFRED OGDEN.

## 15.—MOISIE HATCHERY.

*(Private, not under the control of the Fishery Department.)*

Hon. C. H. TUPPER,  
Minister of Marine and Fisheries,  
Ottawa.

SIR,—I beg to submit herewith the annual report of the expedition to procure salmon eggs for the hatchery on the Moisie River for the season of 1892.

Our party left the station at 5 o'clock on Wednesday, the 12th October, on the trip for the eggs. The day was fine but there was a strong breeze of north wind. We had dinner at the foot of the portage at 11 o'clock, continued on our way and reached the head of the portage at 4 o'clock, where we camped for the night. The next morning we left at 6 o'clock for the head of the river. The weather continued fine and we arrived at the fork of the river at 5 o'clock at night. The next morning we left for the seining grounds at 8 o'clock. At the first cast of the seine we took 4 female and 2 male salmon; at the second, we took 2 males; the third, 1 male; the fourth, 2 males, and the fifth, nothing. We returned to the camp at 11 o'clock. The next morning which

was Saturday we left for the seining grounds at 8 o'clock. At the first cast we took 2 males; the second, nothing; the third, nothing; the fourth, 1 male, no good; the fifth, 1 male, and the sixth nothing. We returned to the camp at mid-day and rested quietly till Monday morning. We started to come down at 6 o'clock, reached the salmon hatchery at 2 o'clock and deposited the eggs in the rills. Continuing our journey we arrived at the post at half-past six.

The number of eggs estimated to have been placed in good condition in the hatchery is about 80,000.

In a letter of recent date received from the caretaker of the salmon house, he reports very few bad eggs taken out of the beds so far.

I remain, sir,

Your obedient servant,

JOHN HOLLIDAY.



### 3.—ANNEXES.

#### FISH PROTECTORS.

THEY MEET HERE TO DISCUSS PLANS FOR THE FUTURE—LAWS ARE OPENLY VIOLATED—NEW YORK GAME LAWS APPEARED TO BE THE MOST PERFECT—AND WILL PROBABLY BE ADOPTED AS A UNIVERSAL SYSTEM.

*(From Detroit Journal, Dec. 20th.)*

A conference of the various State and Canadian Fish Commissions opened at the Hotel Cadillac this morning. The last conference was held at Hamilton, Ont., 8th December, 1891, when an adjournment was taken to meet here in October last, but owing to the pendency of the political campaign the meeting was postponed until to-day.

Those in attendance at the session were C. F. Osborn, of Dayton, representing the Ohio Fish Commission; L. D. Huntington, president, and W. H. Bowman, secretary, of the New York Fish Commission; Samuel Wilmot, Ottawa, Ont.; Edward Harris, Toronto, Ont., and Thomas Marks, Port Arthur, Ont., representing the Dominion Fisheries Department; E. W. Gould, Leasport, president of the Seas and Shore Fish Commission, of Maine; Dr. Robert Ormsby Sweeny, sr., of Duluth, president of the Minnesota Game and Fish Commission; Herschel Whitaker, Hoyt Post and Frank N. Clark, of the Michigan Fish Commission; C. W. Keys, of the Sandusky Salt Fish Company; Frank J. Amsden, of Rochester, N.Y., members of the New York Cheaper Fish Food Association; S. A. French, of Baltimore; Judge J. J. Speed, W. W. Griffin, Wm. Dupont, A. G. McDonald, John Zimmerman, Otto H. and C. H. Rush, C. H. Moore, George C. Gree, Wm. Craig and A. Solomon, all of Detroit.

#### THE OBJECT OF THE MEETING.

The meeting was called to order by Herschel Whitaker, who stated the object of the conference to be a free discussion of the laws of each state governing fisheries, with a view to adoption of a universal system throughout the entire country. It is also desirable, he said, to adopt a uniform law governing the duties and powers of state wardens which shall secure a satisfactory enforcement of such laws as should be adopted by the various states for the purpose of regulating the taking of fish and game. Commercial fisheries, said Mr. Whitaker, should also be an important matter to come up for discussion, as well as the best methods of re-stocking the streams and securing to the public the benefits of artificial propagation. The various State and Dominion Governments, he said, have been liberal in the matter of supplying fish for food, but we all know that the laws already enacted are being openly violated, and, therefore, for the purpose of acquiring universal laws we have asked men interested not only in fish culture, but in commercial fisheries, to meet with us and discuss these important matters.

In the absence of Senator McNaughton, of New York, who had presided at previous conferences, Mr. Whitaker was chosen chairman, and Frank J. Amsden, of Rochester, N.Y., secretary.

Letters were read from Hon. Emory D. Potter, of Toledo; A. Booth, of the Booth Packing Company, Chicago; Messrs. Dunning, of Wisconsin, Skinner, of St. Lawrence, N.Y., Sec. Stewart, of the Canadian Fisheries Conference, and a number of others, all of whom regretted their ability to be present.

A letter was also read from Levi Brown, of Sand Beach, Mich., a fisherman of 30 years' experience. He admitted that state fish hatcheries had been of incalculable value to professional fishermen, but thought more stringent laws should be enforced for the protection of the young fish. He would make a penalty of from \$100 to \$500 for every whitefish of under 1½ pounds found in the possession of any person, fisherman or otherwise. He also thought every state should adopt a close season system for the purpose of giving the fish a much needed rest.

The very classes of fish laws, some good and others so loose as to be no good, were discussed generally. The method of employing wardens and deputies for the enforcement of laws in several of the states was thoroughly aired. In the evening they partook of a banquet.

DEC. 21.

The conference of fish commissioners was rather slow in getting to work this morning, the labours of last evening's session being regarded as too burdensome for most of the delegates. Mr. Andrews, of the Minnesota Commission, gave an outline of the work accomplished at the annual meeting of his commission last week, and also read a bill prepared at the meeting to be submitted to the Minnesota Legislature. The clauses referring to the exportation and importation of fish out of season appeared to impress the members of the conference as the best they had ever seen. State Game Warden Hampton, of Michigan, also admitted that the bill contained many good points which would better enable the wardens to secure the conviction of violators of the fish and game laws.

Committee to which was referred the matter of outlining universal laws to present to the legislature of each state and province recommended as follows:—

1. That all small fish and those unfit for food of all kinds when taken in nets, should be replaced in waters when taken alive; that fishermen should not be allowed to take such fish on shore, nor expose them for sale.
2. That no string of pound-nets used in the lakes shall extend more than four miles from shore.
3. That one-half part of all channels between islands or elsewhere where fish might migrate to spawn shall be kept free from nets of all kinds at all seasons.
4. That all whitefish taken of less than one and one-half pounds in weight and all salmon-trout less than two pounds, shall be returned to the water when taken, and shall not be exposed for sale; that herring of less than eight inches in length and all wall-eyed pike of less than twelve inches in length shall be returned to the waters when taken, and shall not be exposed for sale.
5. That the month of November in each year be made a close season in all the great lakes for whitefish, herring and salmon and lake trout.

Your committee would further recommend that all penalties fixed for violations of any laws that shall be enacted shall be made not only to apply to those who take fish but also to all persons who buy, sell or transport or have the same in their possession.

Mr. Keys, of Sandusky, thought the conference ought to take some action towards securing the suppression of gill-net fishing, but others thought if a clause to that effect was inserted in the report it might injure the chances of passing the proposed bill by the various legislatures.

The conference declined an invitation to visit the United States fish hatchery at Northville, and adjourned to visit the Dominion fish hatchery at Sandwich. A short business session will be held prior to the banquet this evening.

**A.—EXTRACTS FROM PROCEEDINGS OF THE INTERNATIONAL FISHERIES CONFERENCE, HELD AT DETROIT, MICHIGAN, TUESDAY AND WEDNESDAY, DECEMBER 20 AND 21, 1892.**

Mr. WHITAKER, of Detroit: I will call the meeting to order and state in a general way the origin of the International Fisheries Conference and its objects. Something like two years ago, the Parliament of the province of Ontario passed an Act appointing a Game and Fish Commission, and empowering that commission to take testimony on the condition of the fisheries of the great lakes and the inland waters, and also the game of the province. They were also requested to confer with the states bordering on the great lakes respecting the fisheries and the enactment of uniform laws for the protection of commercial fisheries of the great lakes. The outcome of the efforts of that board was a called meeting at New York. At the New York meeting the province of Ontario, and I think the state of New York, and perhaps some of the other eastern states, although I am not sure about that, were represented. Very little was done at that meeting, and it was finally adjourned to meet at Rochester. There, some discussion was had upon these matters, and certain committees were appointed, and some resolutions were presented and considered, and their further discussion was postponed to a meeting called in Hamilton, some time about October of last year. At that meeting the subject was taken up and pretty fully discussed; and I think as a result of that meeting some recommendations were made to the Parliament of the Provincial Government. Since that time, through the efforts of the Game and Fish Commission, some protective laws have been passed, and I believe they consider that there has been some benefit derived therefrom.

It was thought at that meeting that it would be beneficial to all of us who have an interest in these things to have an adjourned meeting, and keep up the organization, and upon my invitation that body adjourned to meet here some time in October of this year. But owing, as stated in the circular sent out, to the pendency of the presidential campaign, it was deemed best to postpone it until after the close of the campaign. We are to-day meeting for that adjourned conference. Considering the matter, we thought it advisable to give a little broader scope to the proceedings of a conference of this kind than was originally contemplated. Those who are engaged in fish culture know that the decay of the fisheries has been constant and gradual, notwithstanding the States are engaged in artificial propagation, and doing their utmost to restock the great lakes as well as the inland waters. But really the matter in which the States are most interested, and the people, is the preservation of the commercial fisheries of the great lakes. It seems to me beyond all question that the lines along which we shall work must be the same: that our views should be uniform as to the necessity of imposing a reasonable regulation upon all fisheries, that will preserve for the future the benefits of the great lakes and their immense food-producing product. It is to the interest of the people most decidedly, because here nature provides for us, without the culture of man, a constant and increasing, if properly preserved, food supply, and a very important one—a cheap food and a wholesome one. It is certainly in the interest of all classes that this business should be protected, and the thing we have to contend against as fish culturists is the fact that while we are annually putting into these waters, for the purpose of renewing them or sustaining them a large number of fish, and the governments have been liberal in this matter of propagation and distribution, we are confronted by the fact that thousands of tons of fish are annually taken by the fishermen that have never come to a mature or spawning age. This process of fishing is destroying not only our own work, but is destroying the fish that are naturally in the lakes which are taken



before they have ever spawned. What we must all face is this question of how we shall perpetuate the fishing on the great lakes. Incidentally comes up the question of whether we shall have a close season that shall be uniform with Canada. Canada has a close season of the month of November, the month in which the spawning of salmonoids is principally performed. There is also the question of the regulation that should be laid upon fishermen in other respects.

I will say that we have taken pains to invite here to consider these questions with us the commercial fishermen of the great lakes. They, I believe, understand that we as fish breeders are not attempting to interfere with their business, but that as people who represent the states, as people who are attempting to renew and build up the fisheries, we ask them to help us to impose some regulation that shall not take from the great lakes or smaller bodies of water these immature fish, and that have no commercial value. I think now, gentlemen, I have stated our objects broadly enough.

Chairman WHITAKER: I have a letter from Mr. Booth, of the A. Booth Packing Company, of Chicago, one of the largest dealers in our lake fish there is on the borders of the lakes. He says:—

CHICAGO, December 17th, 1892.

Herschel Whitaker, Esq., Detroit, Mich.

DEAR SIR,—I am very sorry to say that I am called away to New Orleans and shall not return in time for your meeting at Detroit, but I sincerely trust you will have sufficient people to attend the International Fish Conference and that their deliberations may result in the general good of protection of fish and fish culture, the enforcement of laws and the passage of others that may be beneficial. There seems to be generally throughout the states good laws for the protection of fish and game, but unfortunately there seems to be more "honour in the breach than in their enforcement." We have called the attention of some fish commissioners to the small meshes of pound-nets and gill-nets, which I think do more to destroy the fishing interests of the lakes than anything else, and I do hope we may profit by the better observance of the laws in reference to the protection of fish and game enacted in Canada, or rather the enforcement of it. I should very much like to see a more cordial feeling existing between our country and Canada in reference to uniformity of the fish laws, and trust at your deliberations much good may result, and am

Very sincerely yours,

A. BOOTH,

*President, A. Booth Packing Co.*

MR. GREEN.—I have a letter here in answer to one I wrote, from an old fisherman of thirty years' experience. I would like to have the letter read to the conference.

MR. WHITAKER.—No doubt the conference would be glad to hear it. The Secretary will please read it.

The Secretary read the letter of Mr. Levi Brown, of Sand Beach, as follows:—

SAND BEACH, MICH., Dec. 19, 1892.

MR. GREEN.

DEAR SIR,—In reply to your letter will say I am glad to hear from you. I will give you my ideas of fishing and what ought to be done in the future to protect the hatcheries and fish. I have fished about thirty years now, and you know that I have always made a success of it. The hatcheries are a great help toward increasing the fish, but unless something is done to protect the small whitefish we have for a number of years planted a number of millions each year—we shall fail. We find that these fish are caught when only from one to two pounds in weight, as you know, and they are only half grown. For one place they are destroyed in Saginaw Bay by the tons and in other places the same. We understand that the small mesh has been a failure in the way of protecting the small whitefish. I think the best way is to put a fine on the man who catches them, also on the consumer, or who ever has them on hand—anything under one and a half pounds.



You know these small fish when caught could be thrown back into the water and would live. Fish of that small size are of no use to anybody. There should be a fine of \$100 to \$500 for any man who is caught with them. Unless this is done the fish are not protected much.

I think the fish ought to have a rest the same as the game, to give them a chance to gather on their feeding grounds. Now there are fishing tugs that fish the year round unless it is a very hard winter. I am not talking altogether about others, as I fish with a tug and sail boats myself. I can make a success of it if have five or six months out of the year, and others should be satisfied. I think in the spring, from April 1st to July 1st, and in the fall, from September 14th to December 1st, should be a close season. This gives us three months in the spring and three months in the fall to fish. That is six months to fish, and that ought to satisfy the fishermen. Some may think the Canada fishermen will have a better chance, but I think not, for as they hunt them up they would crowd on this side. The fish work the same as the game. Some fishermen may think this would be a damage to them, but the price of the fish would come up so I think it would be a benefit to all the fishermen. Mr. Green, I give you the best of my ideas, and perhaps you can better them in some places, but I hope this will give satisfaction to all. Don't forget to let me know how you prosper with this.

Yours respectfully,

LEVI BROWN.

Chairman WHITAKER.—In some respects, gentlemen, the first subject for our discussion and consideration in my opinion is one of the most important we have for consideration here. What we need to do is to agree upon a uniform fish and game warden law. And it should not be a fish and game warden law that simply provides places for men who do not perform the functions of their duties. Unfortunately for the state of Michigan, and I know that is largely so in the state of Ohio (I think their law is very much the same as ours), our law calls for the appointment of a chief warden whose compensation is \$1,200 a year, and is paid by the state. It permits the appointment of not more than three deputy wardens in each county by the chief warden, and their compensation is fixed by the board of supervisors. The result has been that we have absolutely no enforcement of the law, because the supervisors will fix no compensation, and therefore the wardens are simply figure-heads. What the state should do, in my opinion, is to pass a law which should make these wardens paid by the state—should pay their expenses by a warrant drawn on the State Treasurer, and countersigned by the Game Warden-in-Chief. I may have something further to say upon it, but it seems to me this evil may be remedied in that way.

The subject is now open for your discussion. In the first place I think this subject ought to be anticipated by the discussion of the question, should we agree upon a uniform warden law? I will take the liberty of calling upon one or two gentlemen who I know who are familiar with the enforcement of the laws in their localities. I will ask Mr. Wilnot to give us the workings of the warden law, so far as he is informed in his jurisdiction, and to talk upon the matter before us as in his judgment he should.

Mr. WILNOT.—Mr. Chairman and Gentlemen—I feel a good deal of deference in appearing before you. In the first place, we do not come to represent the province of Ontario or any of the provinces of Canada. We come here on behalf of the Dominion Government, to listen to what may be said, with a view, if possible, to learn something and to give as much information as we can, but over this question of wardenship we have no jurisdiction whatever. The Dominion of Canada has had laws controlling these matters since the federation, but at present there is a dispute arising between the local governments of the provinces and the Dominion on that question. In the meantime, the Federal Government is making what are termed the fisheries laws. They have for several years appointed what are termed the fisheries officers. The Dominion Government has nothing whatever to do with the game laws. They are wholly under the jurisdiction of the local governments. The local governments of Canada have control of the game laws. Therefore, the proceedings we are entering upon are quite beyond my jurisdiction to give you any light upon. If the question comes up with regard to

the appointment of fisheries officers I will be glad to give you what information I can. But it is beyond my power to give you any knowledge upon this subject of game wardens, because we have nothing to do with it. If we have any representative here from Ontario, perhaps he can do so. In the meantime, I must decline to discuss that subject.

I might also state, while I am on my feet, that I notice the meeting has been called the International Fisheries Conference. At first I was under the impression that it wasn't my sphere to be here at all, because it is not our province to deal with international questions. International questions can be dealt with only by the federal officers of the United States on the one hand, and Great Britain on the other. This could hardly be called an international meeting. With all due deference to the International Fisheries Conference, I think it more appropriate to call it an Inter-state State Fisheries Commission, in which the states proper would have an opportunity of expressing themselves, but international action, I think, is beyond the jurisdiction of any of us. We in Canada have to leave all those questions to a higher power—Great Britain. The province of Ontario had given information to you previously that they were desirous of having a meeting of this description. The province of Ontario never communicated that wish to the Dominion Government. We never had any knowledge of it. Consequently the Dominion Government had no communication, and received no invitation from the previous meetings you held, which I deemed of great importance. The reason why we are here is this: The Dominion Government appointed a special commission consisting of myself and my colleagues, Mr. Harris, of Toronto, and Mr. Marks, of Port Arthur, to investigate matters in the province of Ontario, with a view of ascertaining what could be done to improve the fisheries and if possible to do away with the cause of complaints and clamours that now exist among the fishermen in their work. They were all complaining of the scarcity of fish. They were all complaining of improper close seasons. And that special commission has been engaged during the last few weeks taking evidence around Lakes Erie, Huron, the Georgian Bay, and a portion of Lake Ontario. While away from home I received your kind invitation to attend the meeting but could not accept it at the time, because our duties did not extend sufficiently far to enable us to attend meetings of this kind. I therefore telegraphed to our Minister of Marine and Fisheries asking whether we would be permitted to come here and listen to what might be said, with a view of being benefited by any expressions that come forth here. His consent was given; he telegraphed, "By all means attend the meeting," and hence we are here. When you get down to the question of fisheries I will be glad to discuss that, but it would be out of the place to say any more.

Chairman WHITAKER.—I will say to the representatives of the Dominion Government that we are exceedingly glad to have them here, and we hope they will participate in every subject that may come up for discussion. This child, the International Fisheries Conference, was baptized without my consent. I did not know what its name was until long after the act was performed. It makes but very little difference, however, what its name may be, the proceedings that have been at these meetings have been in the nature of a conference of states and provinces, or whatever you may be pleased to call them, of different nations, and it has all been tending toward the general good of all in that line. We ask every person who is interested in these questions to be present with us at our meetings and express their sentiments freely. It binds no one, but if by these conferences good can be brought forth, the states and the provinces are so much benefited. \* \* \*

We will now proceed to the second order of business, No. 2, and I think, perhaps, in the discussion of these matters, it will be well to take them up as an entirety. I will read them:

1. Should there be a close season for whitefish?
2. If yes, what shall be the limit?
3. Shall a restriction be put upon the size of fish to be taken, or had in possession, or on the size of mesh?
4. Penalties.

There are many other things which it would be proper to discuss at this time, but the programme itself is but a starting point for discussion. The matter is now open for consideration and we would be glad to hear from any member of the conference. I know



of one gentleman present, the better part of whose activity for the past twenty-five years has lain in the direction of a better enforcement of laws, and in the creation of new laws, and in as rigid an enforcement as could be given. I know that he is thoroughly familiar with every point that is concerned here, and I would ask the Hon. Samuel Wilmot to respond.

MR. WILMOT.—Mr. Chairman and Gentlemen—You impose on me a rather onerous duty just now, but notwithstanding it gives me pleasure to rise and speak. Should there be a close season for whitefish? I think if it should be put, “there shall be a close season for whitefish,” it would be much better, and I think the probabilities are that we would pass the resolution almost at once in favour of it. But this throws the matter open for discussion now and I beg to make some remarks upon it.

A close season for whitefish is perhaps more required than for any other species of fish on this American continent. I think the whitefish are pre-eminently the best fish that inhabit the fresh waters of North America, and at one time they were perhaps the most numerous, but of late years they are becoming very scarce; indeed, so much so that we find almost every state in the union, whose territories border on the great lakes, is endeavouring in some way to protect them, and each is trying to outdo the other in artificially producing them, thus giving evidence that they are considered a superior fish, and testimony that there is something that calls for this protection. Without any degree of egotism, I may say that it has been a labour of love of mine for the last twenty-five years to aid nature in its production of fish for the commercial benefit of the country, and as a luxury for the table. I may say that I originated the artificial propagation of whitefish as a public work, and, therefore, have taken a very prominent part all the way through in carrying out that industry, and, at the same time, while I have done that, I have never been so foolish as to say that artificial culture of fish is going to supersede the natural. I regret very much to find, in many states of the union, and among my own people in our own country, that they have the idea that if they have hatcheries here and there, there is no necessity for close seasons being carried out. This feeling predominates more with fishermen than any others. It is a fallacy to think that the construction of hatcheries for the artificial breeding of fish is going to supply the want. The fishermen, however, as I said before, claim that if we build hatcheries, no close season will be required. This, then, brings the subject at once before me.

I am a strong advocate of close seasons for every description of fish, not only for whitefish, but for all others, because I think in the first arrangement of nature, the balance was perfect, and when you disturb that balance, we necessarily will have to make it up by some means by which man is capable to a certain extent of bringing about, and that is by protection and by artificial production. A close season for whitefish is above all others, I think, more necessary than with any other fish. They are an innocent fish in their nature, they are not voracious. They are very prolific in their nature, and it was intended, therefore, that they would to a certain extent keep up a sufficient supply for the more voracious fish to live upon. When that other destroyer of fish, mankind, come in, he destroys that balance altogether, and he has done it.

The consequence is that whitefish, of all others, should be protected, and a close season should be established for them beyond all question. I propose that every state bordering on the waters, which are also within the jurisdiction of Canada, shall now meet the Canadian authorities in establishing close seasons for these fish.

In Canada we have established a close season for the month of November and we find every evidence, which cannot be very well controverted, that it is the proper month. With my view it perhaps should be a little more than the month of November, but the month of November will fairly cover the spawning season of whitefish throughout every water in this continent to which they are indigenous.

As I said this morning in referring to the matter, a commission has been appointed by the Canadian Government to get information concerning the spawning periods of fishes and the description of the nets used to catch them, with a view of reporting to the Government that it might perhaps take some better means to protect the fish. This commission has been at work for the last six weeks, and they have found at every place wherever they have been along the shores of Lake Erie, Lake Huron, Georgian Bay, Lake Simcoe and a portion of Lake Ontario, that the fishermen all unanimously say it

is judicious to have a close season, but to a certain extent disagree as to when it should be. Some say a shorter period than the month of November, and some say a shorter period would be fallacious, but at the same time they all maintain that there should be a close season for the preservation of fish.

The greatest obstacle we have met with is this: They say that while we advocate the propriety of a close season for white and other fish, it would appear to be almost useless to carry it out on the Canadian shores, when our cousins across the water have no close season. That is the greatest obstacle we have to encounter. All sorts of opposition has been brought against our close season. They state it has had this effect, that they, as Canadian citizens, cannot catch fish, but when they look across the water they find the Americans are fishing during that period, still those in official position simply say this, that if the United States authorities take no action to preserve their fisheries, it is no reason why the Canadian authorities should not take action to preserve theirs, because in the end it must be beneficial to us, and those who do not preserve the fish must afterwards come to us to get their supplies of fish.

So it is difficult with us to thoroughly establish a close season for the fish when you have no close season on your side of the water. I am inclined to think if the people here go on, as they have been, for a series of years to come, upon your side of the international boundary of the lakes, the waters will become wholly depleted of fish, but I think if the two countries will join together the result will be very beneficial.

Now, I will state as briefly as possible, the great damage that has resulted from the want of proper laws for a period of years back, and I will give you a little information that I have obtained in the last three or four weeks from practical fishermen—men who have been engaged in fishing for the last fifty years. This information has been received under oath from them, and, therefore, can be more fully relied upon than if merely given in the ordinary way. We find that on the Georgian Bay, which is very extensively fished in connection with Lake Huron, there are a great number of fishermen there who formerly fished on Lake Ontario thirty or forty years ago. The whitefish at that time were very abundant there, and we have positive evidence from a number of persons who say that they fished in Lake Ontario some thirty years ago, and it was not unusual for them to catch as many as twenty, thirty and forty thousand whitefish at one haul of the seine in a night, and we have this sworn evidence of two others who, it appeared, had joined together in fishing on one or two occasions; that one night they caught ninety thousand whitefish with a seine. Well, it went on, there was nothing to prevent it at that time; there was no close season, and they did as they pleased. The question was then put to them, why did you leave Lake Ontario and come up here and fish in Georgian Bay? "Well, sir, we left because the fish had gone; we pulled up our stakes and left Lake Ontario and came up to the Georgian Bay to fish." Nothing can be plainer than that.

There was a lake at one time most abundantly supplied by nature with fish. The fishermen had to leave that lake and go up to the Georgian Bay to fish, and are there now engaged in fishing, but they say: "If you allow this same procedure to go on, although you have a law now, loosely carried out as it is, the same results will be experienced in Georgian Bay as in Lake Ontario." Nothing can be more clear to my mind than that the want of judicious laws some years ago has been the cause of the loss of the abundant supply of fish in Lake Ontario. The fishing has been destroyed there so that the lake is now depleted, and the fishermen have to go to the western lakes. I therefore think that nothing can be more evident than that there should be a close season for whitefish.

The second question is, "If yes, what shall be the limit?" I have expressed my views on that question, that I think it should be the month of November, because from the evidence we have obtained on Lakes Erie, Huron, Georgian Bay and portions of Lake Ontario, it seems that the most favourable season for the emission of eggs of the whitefish is in the month of November, from about the 5th to the 15th or 20th, varying a little, sometimes to the end of the month, and in some cases it begins perhaps as early as the middle of October, but the month of November throughout all these waters, I am now convinced, will fairly cover the spawning season of the whitefish. Do I understand, Mr. Chairman, that we are to take the whole of these four questions?



The CHAIRMAN.—I think it would be more convenient to do so; they naturally come together, and I think it would be better.

Mr. WILMOT.—Then the next is: "Shall a restriction be put upon the size of fish to be taken or had in possession, or on the size of the mesh?" These are three important subjects. It is necessary for the preservation of fish in all waters that there should be, first, a proper close season for their spawning time; second, we should decide what time of year this shall be; and third, there should be a regulation with regard to the mesh that may be used for catching them, in order to prevent immature fish from being caught.

From the experience I have had of more than half a century with regard to this matter, I think that the proper order in which these questions should be placed is, first, the proper close season to allow the mother fish to spawn, and second, a regulation to prevent the immature and small fish being taken, those not large enough for the market or large enough to reproduce their species, and the last is the artificial propagation. I have talked upon the necessary close season, which I trust will appear necessary to you.

The regulation of the mesh is now an important question, because we find from our investigation, not only during the past six weeks, but what has come under my observation for the last twenty years, that perhaps as much destruction is caused by the killing of the immature fish as of the mother fish. The mother fish may produce something, but if you allow the destruction of the young before they are able to reproduce, it is like cutting a string off at both ends—you soon exterminate the species altogether. I should, therefore, contend that the regulation of the mesh is just as important a matter as a close season almost. The mesh should be regulated with every description of net. But the difficulty comes up with regard to the different kinds of net now in use. The pound-net is being advocated by a great many as being the best engine. Others again contend that the gill-net is the best. But I think upon the whole that the pound-net, if it is properly regulated, is superior so far as the quality of the fish produced on the market is concerned, and also for the preservation of young fish, if the mesh is properly arranged. We find all the way through that the pound-net has been put in operation without any sort of regulation as to the size of the mesh, or as to the pot or leader or anything. The fishermen have been allowed to do just as they pleased in every possible way. The consequence is that it has run down to such an extent that the pot or pound in which the fish are usually caught has gone down to a mesh of two inches, or an inch bar. The consequence is that everything that gets in them will be caught, and the destruction has been going on by wholesale, and it becomes the duty of all persons who are the conservers of the fishing interests of the country to establish a proper mesh for the pot of the pound-net, otherwise you are doing as much harm nearly as in killing the mother fish with her eggs.

You can readily understand with an inch bar or a two-inch mesh, a net must be very destructive to almost everything, and you will understand that whitefish of six, seven, eight or nine inches, are taken in abundance. The strongest evidence of their being unsalable is that they are buried in the sands. But we have evidence strongly to that effect, that they get into these nets and the fishermen are not going to be bothered with letting them go again, and in fact the whitefish is so delicate in its nature that the slightest injury causes its death, and they bring them ashore, and they are sometimes buried in the sands. You can readily understand what a vast amount of injury results from that. In the first place, it is the killing during the close season, and the next is the killing of immature fish. This should be remedied by all means, and if the United States authorities would join with Canada in these matters and regulate the pound-net with regard to its mesh, something may result from it. But to allow the matter to go on as it is now, nothing else but ruin will be the result. This not only applies to whitefish, but to every other kind of fish. A mesh of an inch or two inches will take almost anything in the way of fish, and when you legislate in favour of whitefish you legislate in favour of every other fish which is valuable as a table fish or for commercial purposes.

Now, as to artificial propagation. I may be said to be one of the fathers of it on this continent, but I have never gone so far or been so foolish as to make a remark that by this means we are going to overcome nature. I have always held that artificial breeding was only a supplemental aid to nature. To say that it is going to outdo nature, and that we can use artifice and allow man to destroy as he wishes, is a fallacy. I have never held that view. But let us have the size of meshes for your nets regulated on the American side of our lakes and the Canadian side, and I think there is a chance of, to a certain extent, recuperating this wealth which is now nearly gone. Therefore I think it behooves an intelligent gathering like this to come to a conclusion, and prepare for their proper authorities reports showing the necessity of having a description of net that may be used which would not destroy the immature fish, and it further behooves them to use all the influence they can to obtain a proper close season and see that the laws in this regard are properly enforced.

The CHAIRMAN.—Gentlemen of the Conference: The matter is open for your discussion, and we will be very glad to hear from any of you.

Mr. HUNTINGTON.—I would like to have Mr. Wilmot explain their system, and to what extent they are protecting the whitefish, and also their laws as to the size of the mesh.

Mr. WILMOT.—The close season of Canada at the present time, which has been in force for a number of years, is the month of November. There was a change a few years ago to the first ten days of November, and they were set aside as the close season, but that was a mistake. It did not cover a sufficient period of time, and they have extended the time now to the whole month of November, because in doing that it takes in the whole of the breeding season of whitefish. But the difficulty has been that in many instances political influence has been such that a few individuals in a locality will club together and say, "That close season does not satisfy us, and we will apply to the gentleman who represents our constituency to have it set aside for a time," or something in that way. We have found the greatest difficulty runs in that line. Take the Detroit river, for instance. It is the international boundary, and it is a narrow stream, but the whitefish have become almost exterminated simply because it was a resort for the whitefish of Lake Erie to come and cast their eggs and reproduce their young. We in Canada always had a close season for whitefish, but on the American side they have not had a close season, and consequently the Government of Canada has been importuned from time to time to do away with the close season as far as the Detroit river is concerned, and those who have advocated that question gained their point in a measure, so that in many cases the close season of the Detroit River has been set aside for years to gratify the greed of the fishermen on the Canadian side. The consequence has been that by excessive fishing on the part of the people on the American side, with the aid of the Canadians on their side, the Detroit River, once famous for whitefish, has become almost depleted. It is very difficult now to get enough fish to supply the hatcheries with eggs from the Detroit River, while some eighteen years ago, and in one afternoon, I have gotten all the eggs we wanted for our hatcheries.

Mr. HUNTINGTON.—I will state that what I desired was that you should give us the matter as it stands to-day, what protection you are affording the whitefish on the lakes. In other words, what are the laws affecting the whitefish to-day?

Mr. WILMOT.—The laws of the present day in Canada are that the month of November is designated as a close season, but, unfortunately, in Canada, as in every other country, these laws are overrun, and they still continue to catch fish in certain localities; but we are under the impression that if the authorities on the United States side will join us, we can carry it out to much greater perfection.

Mr. HUNTINGTON.—Have you any regulations in regard to the mesh of the net?

Mr. WILMOT.—It is the wish of the Dominion of Canada to establish laws for the regulation of the pound net. The regulation was passed last year, and immediately afterward opposition was brought to bear by the fishermen, and it was left in abeyance and put over for a short time until an investigation should be made by a committee or by a deputation which consisted of myself and my friends here, and we have gone around the lakes and obtained all the information we can, and have come to the conclusion that the pound-net of the present description and mesh, viz., an inch mesh, is one of the most



destructive engines in existence. The pound-net, with a proper regulation of mesh, might be perhaps the best engine for catching fish.

Mr. HUNTINGTON.—What kind of net would you recommend?

Mr. WILMOT.—I would recommend the pound-net as being superior to any other if regulated with a proper description of mesh.

Mr. HUNTINGTON.—The question I ask is what mesh?

Mr. WILMOT.—Nothing less than four or four and a half inches.

The SECRETARY.—Four and a half inches extension?

Mr. WILMOT.—Four and a half inch extension, or five inches. We have found that nearly all the whitefish caught in Lake Superior, Lake Huron and Lake Erie are caught in gill-nets with a mesh of four and a half to five inches and the fishermen seem to be satisfied with that, but when you bring it down to a inch square mesh, or two-inch extension mesh in the pound-net, you catch everything,—immature fish, young, old and everything.

Mr. HUNTINGTON.—With a four and a half inch mesh how would you catch herring?

Mr. WILMOT.—You might as well say, if you got an inch mesh or an inch and a half square for catching whitefish or any other kind of fish, what would you do with regard to catching small herring? It is simply this, if you wish to preserve other kinds of fish than the whitefish, then you must establish a net that little fish will be caught in, otherwise they will be lost as they have in Lake Ontario and as they are going in Lake Huron. The whitefish on the Canadian side are protected by the month of November as a close season, and so far as is possible the law is carried out, but we all know perfectly well that much illegal fishing is carried on in places on the various lakes, but the close season of the month of November is kept for whitefish in Canada, and as you know we are meeting with the greatest difficulty in the world to carry out our laws. Our fishermen say that their neighbours on the opposite side of the lakes have no close season for whitefish, and you enforce the close season with us. Yet, when you go around and make an investigation as my two friends and myself have been doing, for the last six weeks, you will understand the situation. We find they all come up and say that a close season is most advisable, but we would like you to make the Americans have a close season also. This, of course, we cannot do, but I hope from the remarks that will follow this evening, that the gentlemen who represent the various states bordering on the lakes, with Canada, will see the propriety of having a close season for whitefish, and that it is thoroughly carried out.

The CHAIRMAN.—As I understand, you prohibit all netting that month?

Mr. WILMOT.—We prohibit fishing of all kinds for salmon, trout or whitefish, and herring. They are all of the same family and they all spawn about the same time.

Mr. KEYES.—I would like to ask if there is a law in Canada protecting the sturgeon and that kind of fish?

Mr. WILMOT.—Yes, we have a law which protects our spring spawning fish, taking in particularly bass and pike, and maskinongé and others considered of commercial value. We have a law in Canada which takes in the close season of the month of November to cover the salmon-trout, the whitefish and the herring.

The CHAIRMAN.—We have with us a number of fishermen, and we would be very glad to hear from them on this subject.

Mr. KEYES, of Ohio.—Regarding this matter of a close season I have certainly some convictions. The difficulty along our part of the line of Lake Erie, which we have to encounter, is that the time that you can take these fishes best for the market is in the month of November, and in no other month to speak of can you take any whitefish in the head of Lake Erie. It is true that the head of Lake Erie is the natural spawning ground probably for the whitefish, but if you do not take them in the fall with pound-nets and other appliances in the head of Lake Erie, they must then take them with gill-nets. But in the head of Lake Erie is where they catch them, and even now, in the depleted condition of Lake Erie, they catch them in certain quantities in the spring. Of course whitefish have largely decreased, but there were more whitefish taken this fall in Lake Erie than have been taken for a number of years. Probably this may be due to whitefish propagation, but I think it more largely due to the fact that it has ceased to be profitable to fish with gill-nets, and consequently the only whitefish that are taken

to speak of are those on the spawning grounds that come to the head of Lake Erie in the fall and are taken in the pounds, except a few taken with gill nets at the head of Lake Erie. The law of the state of Ohio is that no gill or pound-net can be set upon a reef in the spawning season, and it names the time, but these gill-nets that catch the whitefish on the head of Lake Erie are always on the reefs.

The CHAIRMAN.—What is that time?

Mr. KEYES.—It is at any time; no gill-net or pound-net can be placed upon a reef in the waters of Ohio at any season of the year. And there is where all the gill-net whitefish are taken, upon the reefs. With the pound-net, of course, it is the fish that comes to it, it cannot go after a fish. It is a stationary net and the leaders and the heart are all from six to seven-inch mesh in size.

The SECRETARY.—How is the pot?

Mr. KEYES.—That is usually two inches.

The SECRETARY.—Two-inch extension?

Mr. KEYES.—One-inch bar; we call it two-inch mesh.

The CHAIRMAN.—What part of the net do you say is six or seven inches?

Mr. KEYES.—The leader and the heart. The leader of the net is the part the fish travel along, say 80 or 90 rods in length. In former times they used to fish the pots, so-called, with meshes as high as three and a quarter or three and a half inches, but it killed so many fishes that way that it was almost impossible to raise the nets, and it would destroy them in a couple of seasons. It is difficult to say as to the size of the mesh. Of course, you might get it big enough so that even a sturgeon would go through, but you will always strike a size which will gill a certain proportion, and of course they die and are utterly useless as a commercial commodity. They are, in my opinion, not fit to eat. When a fish is drowned by reason of being gilled in a net, there is no question that almost instantly that fish becomes in a measure decomposed. I am referring now to the dead fish only that are in a net, whether it is a gill-net or a pound-net, and no one ever saw a fish that came out of the water dead that was not bloated to a certain extent, and of course no one will say that a bloated fish is a good fish to eat.

The SECRETARY.—That is a very strong argument against gill-nets.

Mr. KEYES.—I am very much opposed to the gill-net system, but I am not saying anything about it. I think that it is wrong to fish with it under any circumstances at any time. I do not think a net should be so set that a fish can struggle and struggle and struggle until it dies from exhaustion and exertion. I do not think that it is a proper way to kill an animal for food—any more than that the laws of any state or of Canada should permit the strangling of cattle and then have them put on the market. If you had an animal that was strangled in the crib and hung there until it died, you might, if you did not have a good honest conscience say, I will sell this to my neighbour, I will not eat it. It might not kill your neighbour, of course, but it would not be food you would put on your own table.

Now, the close season question is a question of vital interest and importance. There is a close season already in the state of Ohio, which is from the 15th day of June until the 15th day of September. That of course is not in the spawning season of the whitefish, and that law was strictly enforced last year and pretty well enforced the year before. This fall a good many of the pound-net men who drove their pound stakes, hung on their leaders, and they never lifted their nets, mind you. Mr. Osborn and his brother had those men arrested and fined and they had to pay their fine; they never took the fish out of the net. But I never heard of a gill-net man being arrested for his work, and they are always fishing on the reefs.

Now, as to the big mesh of which Mr. Wilnot has spoken. If it was practical it would be a good idea, but to put a mesh of say four or four and a half inches, a large majority of the herring would go through that, and you could not catch them at all, and the greater majority of the big ones would certainly stick fast in the net. I agree with him most decidedly, and a committee has already been appointed in our section embracing the whole of the head of Lake Erie, Toledo, Sandusky and Cleveland, and we will get a law passed in the Legislature this winter, making it a penalty with a reasonably heavy fine attached for any fishermen who shall bring ashore from their nets any fish under size and unsuitable for the market, and also a penalty upon any man who



will sell them. Some of the fishermen say, we cannot sort them, but we put the question to them and (understand we all fish nets as well as handle fish on shore), "Suppose there was a penalty of \$25 for the first offence and \$50 for the second offence for bringing ashore a fish less than a certain size established by law, don't you suppose you could pick them out?" "Oh, yes if we had to, but it would take longer time." Of course, but let them take longer that is all.

There is no doubt that the destruction of the small fish is a grievous offence against the industry and ought to be stopped, and it can be stopped. There is no question but what in the pound-net system the small fish can be thrown overboard and allowed to go. Of course some may come in with some catch, there is no certainty to it. Now, take a pound-net. I speak of the pound-net for I have never fished with a gill-net and I hope I never will. The pound-net is set stationary, with poles, it cannot be moved. If the fish go to it and follow its leaders it takes them. A majority of the fish could go right through the leader. There is not a herring that will ever gill in a leader or heart. In the fall we have found a few that have gilled. Fish spawn all over the head of Lake Erie. I do not believe there is any place where they do not spawn when they get in the shallow water.

The headwaters of Lake Erie, commencing on a line about Vermilion, directly opposite the dummy light on Pelee Island Point, is what gill-net men call the reef. On this ridge, of late years, they have set their gill-nets. Now then the question arises, and it is a fair question for gill-net men and pound-net men and every other man connected with fisheries, whether the reduction in the catch of fish is so much owing to the amount of fish caught by the nets of all descriptions as it is owing to the amount of fish that are turned back from the natural spawning grounds and not allowed to deposit their eggs where nature requires it, and thus their spawn becomes less. Nature compels them to go to a certain place to lay their eggs, and if they cannot reach their spawning grounds, and if they are prevented by nets strung along there through Lake Erie and finally deposit their spawn wherever they happen to be, that spawn fails to reproduce—whether that accounts for the reduction in the fish or whether the quantity of your catch accounts for it is a question. I think and I believe it is the general opinion of nearly every practical fisherman who sees it, that it is much the greater reason that the fish are not productive by reason of the long string of gill-nets which prevents them from getting to the natural spawning beds of Lake Erie.

You take it just a little above Cleveland and you will find strings of pound-nets reaching out into the lake, eight, nine and ten miles from the shore, string after string until you get well up towards Sandusky Bay, and then beyond these pound-nets are strings of gill-nets reaching clear over into the Canada waters and whether there is a close season in Canada or not, they run their gill-nets clear over across to Pelee Island, and they do not make any bones about it. There is a wall of net stretching across Lake Erie, and I will ask how those fish can reach their spawning ground? I believe that if a law could be passed compelling fishermen to put overboard the small fish which are unsuitable for food and unfit for the market, that it would be a far greater benefit to the fishing industry of the great lakes than to have all the close seasons you could adopt. Now, there is no use of making a close season to shut out this article of food. You take the fishing of Ohio, and you take the month of November out of the fishing month, and you might just as well hang up your nets entirely on the American side, that is, on the headwaters. The month of November is the only time that it is possible to catch the fish, that is to fish for commerce, and I believe this meeting is more in the interest of commerce than it is of sport, because if it was a mere matter of catching fish with hook and line, it would not matter much to us one way or the other. It is a question of furnishing good food to the poorer class of people of this country as well as the rich.

You take the herring, which years ago was not considered of any value simply because the other fish were so cheap. When the whitefish became so high priced, the herring then went on the market, and it is greatly demanded in the big cities of the east. New York, Philadelphia, Baltimore and Washington consume at least two-thirds of all the herring that are taken in Lake Erie—that is of the fresh herring taken. They go on to the market against the salt water fish, strange as it may seem, and because it is so

cheap and supplies a cheap food and a good food, they are demanded very much. There are a great many hundreds of thousands of dollars invested in fishing boats in Lake Erie and especially in the headwaters, and when I refer to the headwaters I mean from Cleveland up. These men interested have their plant, they have got their outfits, their boats and their docks and their nets and their vessels, and they see before them, unless something is done, a very near future when fishing will utterly cease in Lake Erie as it has ceased in nearly all of the great lakes; and the dealers and fishermen are ready to go hand in hand with anybody or with any set of men who will propose a scheme that will be practicable and give some hopes of reasonable success. But I very much doubt whether a law establishing a close season of November could be passed in the state of Ohio, and if it would be passed it would simply take that product entirely out of the market, because that is the month in which they are caught. They would simply go back to the lower end of the lake and be taken with other appliances in the spring.

MR. OSBORNE.—With a two-inch mesh, could fishermen get clear of the small fish, throw them back?

MR. KEYES.—The question of time does not enter into the consideration of this question at all. It will take a little longer of course to sort them out. All they have got to do is to handle these fish with their hands and throw the small ones overboard.

THE CHAIRMAN.—I would like to know what is the object of taking the young fish in the net at all if you are going to put them overboard?

MR. KEYES.—You cannot help yourself, the fish are all caught together and you have to pick them out just as they come, you cannot sift them out through a sieve.

THE CHAIRMAN.—Why could you not regulate it as suggested here by the mesh of the pot?

MR. KEYES.—The trouble is, you would gill so many fish. You would gill more fish that are of a suitable size for the market than you would save of the small fish that would run through. You will often catch minnows in a pound-net, but what is to hinder minnows running through? Many a minnow is caught, the fish get scared and the first thing they know they are in there with a pile of fish and the minnows themselves won't get through. No matter what the size of the mesh is, any practical fisherman will tell you at once that you would still get many of the small ones, because the fish do not go through. If they did, those fish need not follow these leaders. If it was the nature of the fish to run through every hole they could find, they would get through these leaders at all times.

THE CHAIRMAN.—I was going to call your attention to that because we know, as a matter of fact, the size of the mesh of the leader and heart cuts no figure whatever.

MR. KEYES.—It is just the same, that is, the fish is a very timid animal, and it does not take much to frighten him. At the same time he is a little curious, and so he follows this shadow, while he could just as well pass through if he wanted to, if he had any desire to go that way. He need not come around, but he prefers to go on. It is the same way in the pound, they swim round and round.

THE SECRETARY.—Do you think if the pot has a small mesh the fish would be hurt less?

MR. KEYES.—They do not hurt them at all. Take it when there is a heavy storm which lasts for two or three days, and you will find very few of the fish hurt.

MR. POST.—I would like to inquire what the season of herring fishing on Lake Erie is?

MR. KEYES.—They generally commence to catch them early and catch them all the time. You catch all summer. You may commence to fish in the latter part of September, but they do not usually get a good run of herring to amount to anything until the 20th of October.

MR. POST.—It is pretty nearly over in the month of November?

MR. KEYES.—We get the heaviest fishing usually in the month of November, and usually the best week's fishing along about Thanksgiving Day.

THE SECRETARY.—At the same time you get these herring do you get whitefish in the pound?



Mr. KEYES.—We get whitefish all the time, but in limited quantities. Of course the great bulk of the whitefish taken in the head of Lake Erie are taken in the gill-nets upon the reefs.

Mr. POST.—I thought the herring spawning preceded that of the whitefish?

Mr. KEYES.—It does, but the whitefish come on about the same time, and the spawning season is the same. About the 1st of November we generally look for spawn in the boats when the boats come ashore.

The SECRETARY.—Some years ago there were not so many herring in Lake Erie as now?

Mr. KEYES.—The herring fishery has never been even. There probably never was a shorter season than this season for the last fifteen years. There probably were more herring taken from the waters of Lake Erie four years ago than had ever been taken before. That season the Sandusky freezers had 28 tons of herring frozen, and there was something like 30,000 or 40,000 barrels of salt herring. It was so all along the lakes. Before that there had been short seasons, but not anything like this season.

The SECRETARY.—Take an equal number of pounds of herring and whitefish, and what is the difference in the profit to the dealers?

Mr. KEYES.—Of course our business is all wholesale. The whitefish are about eight cents a pound. The average price for fresh herring is about two cents. I am speaking of this winter. Of course the herring are sold in the markets of Philadelphia, when they are plenty, at about \$3 a barrel.

The SECRETARY.—If you were going to have one or the other, which would you prefer for your business?

Mr. KEYES.—The herring. In the first place, if you had as many whitefish as herring the markets of the country would not pay any more than three or four cents a pound, and I doubt even if they would take them then.

The SECRETARY.—If whitefish were plenty they would be that price, wouldn't they?

Mr. KEYES.—Certainly. The herring is sold largely as a smoked commodity. It is a regular business, and it is about the only fish treated in that way which is a success, except the sturgeon. That is one reason why it is becoming so popular in the last few years. It is only a few years ago that we had no freezers.

I want to get back to the question of a close season. As between Canada and the United States, it is a question of considerable depth. The whitefish does not frequent Canadian waters; it is not our experience as fishermen at all that it frequents the waters of Canada, especially this end of Lake Erie, as they do the other side. The spawning beds seem to be around there. If you shut off the month of November, and that is the spawning month, no doubt; you would destroy the whole commercial industry that has been built up on this side of the lake, and of course you understand that would be quite a task to perform. But if something can be arrived at that will not destroy this fishing industry, but will tend to build it up and preserve the fishing, I do not think there is a fisherman that is not willing to do all in his power to help it along.

The CHAIRMAN.—During how many months of the year is fishing prosecuted in Lake Erie?

Mr. KEYES.—The whole year round. In Pennsylvania there is no law, and in Ohio waters, so far as it is possible for the commissioners to enforce the law, I think they are enforcing it. There is no fishing between the 15th of June and the 15th of September.

The SECRETARY.—Why were those dates fixed; what was accomplished by it?

Mr. KEYES.—Largely fixed from the fact that the fish taken at that time is not really a good article of food. It was not for the protection of the fish particularly, except that it does give them three or four months' rest.

The CHAIRMAN.—Do you think it would be an unjust thing to give the fish a rest, not only for Lake Erie but for all the lakes, for one month in the year?

Mr. KEYES.—It would depend on what month you select.

The CHAIRMAN.—The spawning month.

Mr. KEYES.—Then you select the only month in the year in which that fish can be taken to any advantage, and there would be no good grow out of the law because you would not get the fish in that neighbourhood.

The CHAIRMAN.—What are they doing the other 11 months in the year in Lake Erie?

Mr. KEYES.—When they can get out in the winter with their gill-nets they fish all winter. They do not catch to any great extent, but they are fishing now in Lake Erie just as well as they were last fall. They fish there all the time in deep water until they cannot get their tugs out because of the ice, and whether a certain close season would be a good thing I do not know. I do not know but a close season in the winter would certainly be a benefit to the fish as well as in the summer, but if you would make a close season at a time when they can be best caught for the market, which is in the month of November—

The CHAIRMAN.—Isn't that because they are running on to the spawning beds, and you know those are well defined grounds, and you can catch them easier at that time?

Mr. KEYES.—The whole head of the lake, from Pelee Island and the Dummy Light to Vermilion, is one continual spawning ground. I claim that there is not one fish in five hundred that comes up through those waters that ever gets into the pound net—I doubt it very much. If even half of them are caught and they give time for the other half to spawn, you will have all the spawn you want. It is a question in my mind whether you are going to establish a rule that will allow those fish to get on the spawning ground, because I think it is going to be difficult to get a law through the Legislature of Ohio or Michigan which will say you cannot fish in these waters at a time and the only time when they can be taken, as a commodity, in November.

The SECRETARY.—Isn't it generally understood that when fish are at their season of reproduction they are not fit for food?

Mr. KEYES.—They are taken and considered the very best. You take the case of shad. A roe shad brings just twice the price of a buck shad.

The CHAIRMAN.—Is that on account of the roe?

Mr. KEYES.—They want to get the eggs, I suppose.

The CHAIRMAN.—That is what I supposed.

Mr. KEYES.—The herring spawns altogether in the fall. In the spring they are a much poorer fish than in the fall. The herring taken along in June and July are a much better fish on the Canada side; that is the only time of year you can catch them; at that time of year they run there—

Mr. WILMOT.—For protection they come there. (Laughter.)

Mr. KEYES.—They catch them in large quantities at that time.

The SECRETARY.—They do not even get the protection. You follow them over and catch them.

Mr. KEYES.—As far as Canadian waters are concerned, these fish are taken in large quantities in July and August.

Dr. PARKER.—Returning to the size of the mesh. You said, I think, that the fish seldom gill in the leaders, or heart. You find but very little trouble in that.

Mr. KEYES.—Yes.

Dr. PARKER.—When do they gill in the pound?

Mr. KEYES.—They do not gill in the pound because the mesh is so small they cannot gill. The herring is the worst of all fish to gill, and in the season they will just line a pound right round; it will be perfectly white all round; in nearly every mesh there will be a herring.

Dr. PARKER.—They stay there until you come to haul them?

Mr. KEYES.—Oh, yes, you find them before, but it is worse when they crowd them. As you crowd them they rush to get out.

Dr. PARKER.—The greatest amount of gilling is done at the time of the haul?

Mr. KEYES.—Well, before you get the nets pulled out.

Dr. PARKER.—The greatest trouble is to get them out of there and save them for the market.

Mr. KEYES.—The greatest trouble is they gill all the time from the time the fishing is commenced.

Mr. OSBORN.—We find there were many tons of small fish taken out of Sandusky Bay and sold to the phosphate factories at 65 cents for 400 pounds.



Mr. KEYES.—There is nobody recognizes that fact any more than the dealers in Sandusky. They are all fishermen, and they are only too ready to comply with a law that would prevent that, if it can be passed.

Mr. OSBORN.—What would be the penalty?

Mr. KEYES.—I would put it so big that the second offence would be seldom heard of. I would not make the fine one cent less than \$25 a fish. All of our dealers are unanimously in favour of getting a law of that kind through the Legislature. That certainly would be a very strong step in the right direction, but that we can succeed in getting a close season for the month of November I very much doubt, or that you would even get a respectful hearing before the Fish and Game Commission of the States, because of the men interested.

E. W. GOULD, Commissioner Sea and Shore Fisheries of Maine :—Mr. Chairman and gentlemen of the conference: In the experience of the Maine Commission of Sea and Shore Fisheries there can only be one correct answer given to this question if the end in view is preservation and restoration of our fish. A broader view may with propriety be taken of the subject, and include all edible fish. In Maine waters the white-fish is not a prominent one, but the salmon most abound. Nature has insisted upon a uniformity of laws governing all fish life, and has instituted a most wonderful harmony in apportioning to each kind of fish its peculiar characteristics, habits, localities, time for reproducing its kind, &c., so that when nature establishes a season during which one species ought to be fully protected another of somewhat different habits is in its prime condition, thus wisely ordaining such a condition of affairs as will keep up throughout the entire year the fish food supply of the people. To assist nature in keeping up the supply the intelligence of man comes in as an auxiliary, utilizing the forces and existing conditions of nature to artificially propagate certain fish to replenish the waters, and this, to a certain extent, has succeeded very nicely, but man has never been able to approximate nature in this work, and of necessity, while acting as assistant, must devise some different plan to further increase the young fish.

The fish and game of the American continent at present under the control of each individual state have been held by the State Governments as a sacred trust for the people from time immemorial; and now the thinking portion of the people are slowly awakening to the fact that the danger line of extinction has been passed in some instances, and being rapidly approached in nearly all others. They view with great apprehension the slaughter of the finny tribes going on, and the consequent alarming diminution in their numbers, while with the convening of our different Legislatures petitions come pouring in from all sections asking special laws to be enacted for the protection from the poacher or pot fisherman certain local or private lands; also praying for a more rigid enforcement of the existing laws regulating the taking of fish and game.

The question might with propriety be asked to "*what cause is assigned this great depletion of our fisheries?*"

To those who have made a study of fish life and its underlying conditions the answer is a very simple and exceedingly plain one—simply exhaustive fishing and at improper seasons. But here in answering the question enters a disturbing element—the intensely interested wealthy parties who, through their engines of destruction, have enriched themselves at the expense of the people, and who now are aware that the laity are becoming educated up to what is theirs by right, and that at no far distant day their revenue from this source will be curtailed. These men appear in conjunction with the Legislatures, and, sending their most suasive members, answer this question, without exception prefacing their remarks by first giving a glowing account of the immense industry they represent, the large number of men they employ, and the large amount of general good that is the result of their operations. Then is paraded their intimate knowledge of fish life and the natural conditions which tend to the perpetuation of the species, and in the majority of cases, if the time of the committee or meeting where this question comes up is limited, they enter exhaustively into the general subject, and while arranging themselves to all appearance on the side of intelligent restriction, oppose strenuously any restrictive measures that would be effective, confining themselves to some minor restriction, such as the liberation of fish below a given weight or size, or mesh of net, by this means hoping to throw the burden of

expense on the fishermen and the state to see these measures enforced, and to eventually create a prejudice against restriction by reason of these wardships.

Should this fail them, then they, as a last resort, earnestly advocate investigation at the expense of the state and experiments as to the better means of protection.

These, gentlemen, without attempting to weary you, are a few of the subterfuges employed by these interests.

The more intelligent fishermen promptly range themselves on the side of protection and preservation, foreseeing that without some means being employed to prevent this wanton destruction the business will not survive itself.

From these facts among many others, and from a practical and substantial benefit arising from it, the Commission of Sea and Shore Fisheries of Maine emphatically advocates protection for all edible fish during their season for spawning, and in the absence of an intimate knowledge of the requirements, to protect any fish in a given instance, would recommend such restrictive legislation on that subject as will leave no doubt as to its efficacy until such investigation can be made as will enable intelligent suggestions to be made to the legislatures by the commissioners.

The CHAIRMAN.—Gentlemen, it is getting somewhat late, and I fancy there is very much more to be said upon the matter. It does seem to me that concessions must be made by the fishermen as well as by the people. Because of the physical characteristics of a given water the spawning beds may lie in one end of the water or in the other, and it does seem to me as though some sort of an opportunity ought to be given the fish to spawn when they run on these spawning beds. I deem it unfortunate because of the location of the fishermen, as they would be injured more in Lake Erie on the western reefs than in the east end of the lake, because there are no spawning beds there. If we are going to do anything except exterminate the fish entirely, we must come to some sort of an understanding, not prejudicing the rights of one party nor the other, and I would suggest the propriety of not attempting by the suggestion to in any way shut off the debate, because we want to consider the subject fairly and candidly. I would suggest the appointment of a committee to confer upon this matter and report at to-morrow's meeting.

Mr. WILMOT.—I hardly think the end will be obtained so thoroughly in that way as by an open discussion. The reason why I say that is this, that some of us may not be able to remain during the continuance of your session, and as this is of vital importance to Canada and the United States, I think an open discussion of the matter will be much better than to leave it to a committee to bring in a certain report. The object of this meeting, I understand, is to take up the matter as a whole. If the views are entertained which our friend, Mr. Keyes, has expressed, it will be useless for us to remain here, of course, but as I understand the matter, the meeting is for the purpose of preserving and husbanding the fisheries of the country. I think an open discussion of the matter will be well, and much better than leaving it to a committee to make a report upon. This meeting has been called for the purpose of discussing the merits of the preservation of the fisheries of the lakes in this country and in Canada. We have a close season on our side of the water. The gentleman who has just sat down (Mr. Keyes) says that if you have a close season for the month of November you might just as well close up his business. In Lake Winnipeg, where they have the best whitefishing in the world, they never fish beyond the 15th of October; they never desire to fish. They say their best fishing is before that, whereas in Lake Erie, this gentleman tells us, they could not fish at all if they did not fish in the month of November. I take that as an incorrect statement. I think it would be much better to have an open discussion.

Mr. HAMPTON.—I think the gentleman is entirely right. But while we all concede the necessity of an open discussion, we must recognize the fact, that if we have nothing but discussion, we will not accomplish anything. As I understand, the object of the meeting is to take some steps that will result in something beneficial. The idea of the representative from the Dominion (Mr. Wilmot) is to preserve the fish not only for the people, but for the fishermen of the country. I believe we are all united in regard to this, and the only difficulty is a disagreement as to the manner of doing it.

Mr. KEYES.—Let me say this one word, that Mr. Wilmot entirely misunderstands me if he thinks for a moment that I would stand on this floor and advocate the de-



struction of the fish of Lake Erie or any other, except in the catching of the fish, which has always been considered a legitimate business, and the catching of them of course destroys them.

The CHAIRMAN.—I am inclined to think that we ought to have plenty of time for the discussion of this subject, and I think the best way is to have an evening session.

Mr. POST.—I am myself very much in favour of a committee, and I think we are entitled to the appointment of a committee after further discussion. I would like to inquire if it is the sense of the conference that we have an evening session? I will make that motion, that we do have an evening session, commencing at eight o'clock.

The motion was carried and the conference took a recess until 8 p.m.

#### — EVENING SESSION, Dec. 20th, 1892, 8 p.m.

The CHAIRMAN.—The conference will please come to order. When the conference took its recess it had under consideration topic No. 2, and that topic is still open for discussion.

Dr. SWEENEY.—Before the discussion opens, while I have not the slightest idea of restricting anybody, I would like every gentleman to have the courage of his convictions and say just what he thinks on this subject. I would ask that the conference concur in this motion and that the speeches shall not exceed ten minutes in length, so that every one will have a chance to say something, and I will make the motion that speeches be limited to ten minutes.

This motion was supported and carried.

Mr. OSBORN.—What would be the objection to putting both of these topics on for discussion, two and three are largely alike as to a good many parts, and when the committee of which we talked is appointed, it would cover the two topics without any more work than covering one.

The CHAIRMAN.—We have the whole of to-morrow before us for the consideration of these other topics, and we do not want to be idle all the day. If there is any gentleman here who desires to express himself on this third topic by reason of being called away, I think that the conference will be very glad to listen to him. I think the consideration of topic No. 3 had better be postponed until to-morrow unless some emergency as that arises. I understand, Mr. Osborn, that you expected to go away to-morrow, but you will be here in the morning anyway. The Chair is now ready to listen to further discussion. Dr. Sweeney, the conference has not had the pleasure of hearing from you on this subject, and I presume they would be delighted to hear from you.

Dr. SWEENEY.—Mr. Chairman—I have listened to our friend Mr. Keyes on this subject, to his very interesting and ingenious argument, but I must say that he has not convinced me, and I am afraid that the more I think on it the less I am likely to be convinced. I know from the experience of the protection given by the Canadian authorities to whitefish on Lake Superior that it is most beneficent. The difference between our fishing on the north shore of Lake Superior, in our waters and theirs, is most marked. When you get within 35 or 30 miles of the Canadian line the fishing is fairly good, and when you cross it it is excellent compared to what it is on our side. The greater bulk of the whitefish are obtained from Port Arthur now, and the fishermen of Lake Superior, on the north shore, are so well satisfied that it is the right thing to do that they have expressed to me their willingness, without any solicitation on our part, that we should join with the Canadians in having the same close season. They say if there is such a law so that this man cannot fish and that man cannot fish, we are willing to abide by it, and we know it is the best thing that can be done. The difference in the fishing now from what it was a few years ago, say 20 or 25 years ago, is very marked. We used to get whitefish all the way up to Duluth; all along the Minnesota shore and the Wisconsin shore, it was all good white fishing, but now there are scarcely any whitefish taken until you get towards Bayfield. Very few are taken on the Wisconsin shore, none along Minnesota; and this season, for the first time in fifteen years, or a little less than that, the fishermen are beginning to make pretty good catches along the north shore of small

whitefish, which they attribute to the planting of fish at the head of the lake. It is their opinion that a close season for whitefish, the same as the Canadians have, from 1st November to 1st December, will be the salvation of the fishing. If they are allowed to go on as they have been the fishing will be exterminated. They are catching some fish of our plant a little larger than herring and about the size of herring, and from that to fish 15 and 16 inches long, and they are so well satisfied that the protection of a close season is the salvation of the fishing that they assured me that if such a law is passed they would be willing and glad to abide by it. I feel myself that this is the right thing to do, and I feel that our position that we should protect the fish in the spawning season is right. Notwithstanding the arguments that I have heard, not only to-day but for years past, I am sure that the right position is to maintain a close season.

In regard to our fisheries in Lake Superior, I think our legislature will pass such a law, but whether that is the wiser thing to do further south, should be well considered, I think thoroughly considered before a concession is made to abandon any attempt at having a close season. It seems to me that is the surest and safest way to conserve all fisheries.

Mr. KEYES.—I would like to ask the doctor a question or two before he sits down. Do you, in your opinion, think that a close season in November will prevent the depletion of the fish, and if you do, why would it not be better to not catch them at all?

Dr. SWEENEY.—Well, I think if the fishermen are satisfied they can get along without catching them, that that would be a surer way yet to increase the supply of whitefish.

Mr. KEYES.—That is exactly the argument I make.

Dr. SWEENEY.—I know, but I hardly think that is a fair argument. You know just as well as I do that if protected they will increase, but it is this destructive and persistent fishing in season and out of season that has destroyed the abundance of fish.

Mr. KEYES.—That is true.

Dr. SWEENEY.—Naturally there is a balance established in all animal life, either in the water or in the air, and if a disturbing element—and in this case the fisherman is the disturbing element—comes in you will destroy that balance, but if that element is taken away the natural balance will be restored and there will be abundance.

Mr. KEYES.—I would like to ask the doctor another question. Referring to the reproduction of the fish, what difference does it make whether you catch the fish two days before the law says not to, and just as the fish are getting ready to spawn, or catch him the day he has begun to spawn? You have destroyed the eggs in the fish just the same.

Dr. SWEENEY.—The difference is this: if you stop catching fish there will be all those you do not catch left to reproduce.

Mr. KEYES.—That is true.

Dr. SWEENEY.—That is just the difference—there is no more or less.

Mr. KEYES.—There is not any difference if you catch a she fish; whether you catch it in season or not you destroy just so much reproduction.

Dr. SWEENEY.—It is a question of number, whether you want part of the breeders left or not.

Mr. KEYES.—Is it not a settled fact that catching the fish in the spawning season is the occasion of their decrease?

Dr. SWEENEY.—I think, undoubtedly, it is. If you kill a setting hen before she hatches her eggs you destroy the brood.

Mr. KEYES.—Don't you kill it just as much if you kill her before she is ready to hatch. If you catch a she fish with the eggs in her just a week before she is ready to spawn, or before the close season commences, you have destroyed that many fish just the same as if you had caught her when she is ready to spawn.

Dr. SWEENEY.—The difference is that in one case you stop killing and in the other you keep on.

Mr. KEYES.—I will admit that argument; certainly if you stop killing there will be more left.

Dr. SWEENEY.—A farmer does not eat all his seed wheat, he retains enough for the next crop, and that is simply what we are asking the fishermen to do, to save enough seed to insure another crop. If you kill the gravid fish, the race is extinct.



Mr. KEYES.—The point I was trying to make is this : in Lake Superior you fish the entire season from the opening of navigation to the close, do you not?

Dr. SWEENEY.—When they can.

Mr. KEYES.—Not when they can, but they do. They catch just as many fish in October or September as they do in November.

Dr. SWEENEY.—Yes.

Mr. KEYES.—They catch them in July or August as well as in November.

Dr. SWEENEY.—They catch all they can.

Mr. KEYES.—In no other lake is that so.

Dr. SWEENEY.—I understood you to say they fished all the year around in Lake Erie.

Mr. KEYES.—They do not catch whitefish, except in a few gill-nets, in Lake Erie.

The CHAIRMAN.—I think the ten minutes is up.

Mr. POST.—Mr. Chairman and Gentlemen—It has occurred to me that there is room here for a compromise. Now of course, I agree with a good deal that Mr. Keyes has said with reference to the interest of the fishermen. A fish, of course, is good for nothing until he is caught, and the purpose of raising fish is to raise them for food. The matter of limitation should be such a reasonable limitation that it will insure the natural increase of the fish as well as protect the work of artificial propagation. Mr. Keyes has said, and I believe it is a fact, that the run of herring precedes a little the run of whitefish or the heaviest run of whitefish, and it occurs to me that if a compromise were made upon a close season and the fishing during the spawning season was not entirely stopped it might be best. Suppose the close season commenced on the 15th of November instead of the 1st. The heavy run of the herring is by that time practically over, so that it would not interfere with the herring fishing, and would result in great benefit to the whitefish.

I have no doubt it is true that the conditions upon the upper end of Lake Erie are somewhat different from what they are on Lake Superior. Nature affords a large protection to spawning fish in Lake Superior. The storms that prevail there hoist the pound-nets out before the spawning season is over, and I know it is a fact and has been so for many years there, that it is very difficult for the people engaged in whitefish hatching to get eggs enough there on account of the storms. It occurs to me that if a close season in such waters as Lake Michigan, and possibly others of the same character, were divided to make a compromise between the fishermen and the people on this subject, we would get something that both parties could act under, and that would be a compromise that would perhaps get the support of the fishermen.

I appreciate what probably we all do, that ordinarily it is best to get something which can be enforced than to get an ideal law which is never enforced. It will be very difficult, as Mr. Keyes has said, to pass any law in any of these legislatures of the states that border on these great lakes where the fishing industry is as large as it is, that would not be extremely detrimental to their interest. If you undertake to do more than you can accomplish, you are wasting your efforts. Now, it is very desirable, particularly for us in Michigan, and I presume it is so with the other states where large fishing industries obtain, to get an enforcement of a protective law that will have the support of the better class of fishermen. Now, it seems to me it is better to attain to something which shall answer the purpose to a limited extent than to aim to get an ideal law which will not have the support of public opinion, and of such public opinion as the fishermen themselves will be able to aid in forming, and it has occurred to me that possibly a close season which will extend from the 15th of November on, would be a reasonable protection, even in Lake Erie, to the whitefish, and would not interfere seriously with the herring fishing.

The other suggestions that were made by Mr. Keyes with reference to a law which will prohibit the taking or having in possession or transporting or of dealers holding for sale fish beneath a given size, which shall be agreed upon—and I think we shall have some difficulty even in agreeing upon that—will be a great aid in obtaining a law which will meet the support of the fishermen. There is no doubt in my mind from the experience I have had with the better class of fishermen and those whose support would be more valuable, that they are going to see this matter somewhat in the light we look at it, and they appreciate the necessity for something being done in the way of prevention of destructive fishing. Many of the other suggestions which Mr. Keyes made might

meet approbation—the limit to the extent from the shore that fishing should be carried on, leaving an open passageway so that the fish could get to their spawning grounds, but it seems to me that something in the nature of a compromise on this basis might, perhaps, be reached by a conference committee.

Mr. BOWMAN.—Mr. Chairman and Gentlemen—The representatives of the state of New York are, perhaps, not largely interested in this question. Our lake is separated from your lakes by a border which makes it very different. We are propagating white-fish now in our state, and will hatch fully 15,000,000 this year, but as a general proposition in fish and game—and you see it illustrated perhaps better in game than you do in fish—unless there is a close season, and unless they are protected in that close and breeding season, they are soon entirely destroyed, I do not care what it is. There is no artificial propagation of game, and the only thing that is left for the game in this part of the country to-day is simply to protect them in the breeding season. It seems to me as though that general proposition must be true in everything, must be so with fish as it is with game or anything of the animal kind, I care not what.

Now, it seems to me, as has been suggested, that we should have some protection. I don't know whether the gentlemen from the state of Ohio or the fishermen would be willing to see the entire business destroyed. If they cannot take them in November they cannot take them at all they say, but I believe that the fish should be protected and that they would increase and the fishermen would take more if they were. I think it is for their interest certainly as much as it is for anybody's to do that which will produce the most fish and give them the greatest gain. That is the object we all want to accomplish. Now, if it is necessary, we should make some compromise, for it seems to me very essential that there should be something done to allow these fish to reach their spawning grounds.

Our Canadian friend says, I believe, they reproduce themselves and that artificial propagation is rather an aid than the first cause, and it seems to me as though we ought to reach some compromise which will enable these fish to reach the spawning grounds and cast their spawn before being taken.

We have the same difficulty in the Hudson River. The shad run up the Hudson River to spawn, they are there at no other season, we get them in the spring. We have this same difficulty with the fishermen, and we had a fight of one or two years until we could get one or two days of open season whereby the shad could reach the fresh water at the upper part of the Hudson where we could get enough ripe shad to take the spawn from. We contended for a compromise between the fishermen and the people, and if they had not seen the necessity of allowing the ripe fish to get from the sea to the fresh water when they were ready to spawn, we would not have had any. We used to catch them at Troy, but now you see very few as high as Albany. Our stations are all located below Albany, and we have had great difficulty until we had a day or two open. We thought it was not the proper thing for fishermen to fish on Sunday, so we went to the Legislature on that ground, putting it on the moral ground that the fish should have Sunday, as the fishermen needed it, and so they stop fishing every Saturday night at 12 o'clock until Sunday night at 12 o'clock, and that gives the fish an opportunity to go up and get on the spawning ground where they are ready to spawn.

Take the Connecticut River; you hardly see a Connecticut shad in the market. They have been entirely fished out and they have never been reproduced. That river runs through two or three different states and one state is selfish about it and says, "I will not pay the expenses of a hatchery for the benefit of some other state," and you hardly hear of a Connecticut shad in the market. It may be from some other cause and some other reason, but these facts are true, and it seems to me that it is to the interest of fishermen as well as for everybody, that we should have some kind of a close season, and give these fish an opportunity to cast their spawn when they are ready to do it. They will not cast it at any other season; they will spawn in the fall when they are ripe, and at that time it seems to me they should certainly have a part of the spawning season, and the more the better, to get onto the spawning ground and cast their spawn and reproduce their kind.

I am very glad to see the fishermen take an interest in this matter. I am very glad for the suggestions made of throwing the young fish back; I think it will be of



great benefit and I think it will increase the supply very much. It is a very judicious thing also to leave the channel open so that they can get up to the spawning ground as suggested, and if we can reach some compromise—and there seems to be but very little difficulty except with the gentlemen from Ohio—that will be satisfactory to them and give these fish some opportunity to cast their spawn upon their spawning grounds, I believe in the end it will be a great deal better for the fishermen. Of course the people cannot get these fish unless they are caught, but what is for the interest of the people is for the interest of the fishermen. We are all agreed upon one thing, that we should hatch and protect and increase the supply of fish as much as possible, the greater the quantity the better everybody will be pleased, and we must not all be too selfish, we must not want it all ourselves, we should be willing to give and take, and if we cannot get a whole loaf let us take a half loaf, and let us make a compromise between the fishermen and the people, as has been suggested, say the 15th of November, and to stop fishing after that. It seems to me that after discussing this matter properly we can reach a compromise that would be satisfactory and just to all concerned, and we could pass laws in these different states that would be uniform, and that thereafter you will certainly have a much better supply of fish than heretofore.

Dr. SWEENEY.—If I am permitted to read a letter I would like to; it is in response to some inquiries from our vice-president.

The PRESIDENT.—I think you have the consent of the conference.

Dr. SWEENEY.—There are some points in this that may be of interest. It is from Mr. Turner, a man largely interested in the fish trade. He says:—

“You ask a few points on the whitefish industry. We find that the supply is not equal to the demand, nor are there as many fish by half as there used to be a few years ago. I am not conversant with all the points on Lake Superior, but at Ashland, Bayfield and Duluth and vicinity it is immediately under my management. Would say Ashland Bay may be called the whitefish breeding ground, also at the end of Lake Superior, near Duluth, on the south shore and along Minnesota Point net fishing should be prohibited, as they use too small meshes and catch a great many small whitefish before they are of marketable size, and by this destruction prevent them from maturing. Would also suggest that Minnesota Point and the Wisconsin side of Lake Superior, near Duluth, and the whole of Ashland Bay be protected by a three-mile limit, and no nets should be set within three miles from the above shores, on the breeding grounds of the whitefish in that vicinity.

“We find that fishing has not been profitable for the last three or four years” (he might have said ten) “within 30 miles of Duluth. The growth of the cities of Superior and Duluth may possibly impregnate the water, and with the small mesh nets that have been heretofore used be the cause of this great scarcity. I regret very much not being able to be present, but Mr. Timberlake will explain that it is a physical impossibility for me to be there. We sincerely trust that in your deliberations something may be accomplished for the protection of this great industry.”

I will state that Mr. Turner is very sick and has been so for some time, or he would have been at this meeting.

The PRESIDENT.—I will ask the Secretary to read a portion of the letter of Mr. Booth, who is largely interested in the fishing business, upon this point now under consideration.

The SECRETARY.—Mr. Booth says:—

“In reference to the small meshes of pound-nets and gill-nets which I think do more to destroy the fishing interest of the lakes than anything else, I do hope we may profit by the better observance of the laws in reference to the protection of fish and game enacted in Canada, or rather the enforcement of it. I should very much like to see a more cordial feeling existing between our country and Canada in reference to a uniformity of fish laws, and trust that from your deliberations much good may result.

I am sincerely yours,

A. BOOTH,

*President of the A. Booth Packing Company.”*

The PRESIDENT.—Gentlemen, we have with us to-night a man who was connected for a number of years with the Michigan Fish Commission and who was instrumental in drafting the original law that set some restraint upon fishing. He gave the subject a very great deal of attention, and I know that he has the matter now just as closely at heart as he had at the time he was on the commission. I would ask Mr. John H. Bissell to give us an expression of his views upon this matter.

Mr. BISSELL.—Mr. Chairman and Gentlemen—Although for two years out of the harness, I have not lost any of my interest in the subject of the propagation and protection of fish and the extension of the fisheries. I listened the short time I was in this afternoon with a great deal of interest to what was being said about Lake Erie. My own studies on this subject led me a good while ago to the conclusion that the first thing we needed was a way of enforcing such laws as we could get, and in connection with the enforcement of the laws to give a careful study to the condition of the fisheries in the different waters of the great lakes.

Something has been said this evening about a uniformity of laws. It is possible you may get uniform laws for Ohio, Michigan, Wisconsin and Minnesota, but I doubt if the uniformity could go very far. The conditions of fishing in the different seasons in the different waters are different. Now, what the gentleman from Ohio said about the fisheries at the upper end of Lake Erie demonstrated to me that it would be unfair for the fishermen to make the same regulations for the fishing east of Cleveland that are established for the fishing in the west end of the lake—the upper end of the lake—if all fishermen are to have anything like a fair chance at the fishing.

While some of us know a good deal perhaps about fishing in certain localities, I am quite satisfied that none of us know enough about the varying conditions in all the waters of the great lakes to be able to sit down at a table and prepare what we would be satisfied was a satisfactory and just law, say, with reference to the sizes of the meshes of the nets, a law with reference to the time when fishing should be permitted, and possibly with reference to the size of the fish. With reference to the size of the fish probably we could get uniformity better than in any one particular. The state should pass such laws as they can get, not trying to get, as Mr. Post has said, ideal laws. Of course you cannot get perfect laws all in a hurry. If you could get a law that would regulate the size of the fish and at the same time a law that would regulate the meshes of the nets, with discretionary powers lodged in some intelligent officer, who would be under proper supervision, I think you would get the best results.

But before you could get a law that any one of us would be satisfied with, there must be a study of the conditions of the fisheries in the different waters. Take such a state as Michigan. A law that would be answerable for our Monroe coast of Lake Erie, I am satisfied would be entirely unsuited to the conditions about the Straits of Mackinaw and the south shore of Lake Superior. In order to get that information, officers who are enforcing laws for the states ought to be furnished with some means of acquiring and preserving useful and necessary knowledge on that subject. It is a pretty broad subject, and I am conscious that I am only touching on fragments of it here and there. It is a matter that I spent a good many winter evenings on when it was my duty to be studying such matters, and I can only, in a very fragmentary way, make suggestions here this evening. One of the most important that I can make is that each of the states should try to get wardens or other officers, it makes no difference what you call them, who would have some sort of discretion in permitting the use of nets of a small mesh at a time when it would not result in the killing of whitefish. Take, for instance, the upper end of Lake Erie. If fishing is permitted in November in those waters, it would destroy no small whitefish, it would hurt no small whitefish; there would be no small whitefish there to hurt. The thing that could possibly be accomplished is first to get the officers to enforce such laws as we have; second, to have those officers furnished by the state with means to acquire the knowledge that is necessary for the establishment of just, fair and reasonable regulations.

I should like to go over the subject of the regulations of the fisheries by way of licensing. I became satisfied from my examination of the subject that that is one of the things that ought to be kept in view all the time. The time has got to come when the industry of fishing will be licensed, and the time ought to come when the amount



of fees and revenue that would come from the licensing of the fishing in its proper regulations would defray not only the cost of enforcing the laws, but also the cost of such necessary propagation as the states found necessary to conduct.

Mr. HAMPTON.—Mr. Bissell has touched upon a question that lies more particularly within my field than that which has been under discussion. I would not of course assume to discuss the question of propagation of fish. That is out of my line, and all that I might say upon the matter which is really under discussion would be in the nature of a question.

It has been suggested to me by Michigan fishermen, and on account of my location at the headquarters of one of the principal fishing firms upon the lakes, I have had some opportunities of learning something about the matters you have talked about—it has been suggested that one of the best ways of accomplishing this object you are all aiming at, would be to prevent the setting of nets in a certain depth of water, following out as I understand it, somewhat the plan that is in vogue in Ohio, as stated by Mr. Keyes of that state. I believe that in the waters adjacent to our state (Michigan) that would be practical, because our lakes are such that you cannot wade across them without wetting your pants, but I do not know how that would be in Lake Erie, whether the same laws that would be applicable to Michigan would be applicable there or not. I would simply throw out that suggestion, that the gentlemen, in considering the resolution, would say whether or not the taking of fish upon their spawning beds could not be prevented by some provision in regard to the depth of water at which nets should be set, as well as having a close season.

Now, in regard to the matter suggested by Mr. Bissell, as to what should be the first thing done, I must differ slightly with him, and I speak from experience when I say that the first thing is not to get the officers to enforce the law, but to get the laws, or you cannot enforce them. With the laws as they are in Michigan, and I speak from experience, under the very best system of wardens, under the very best paid officers, it would be utterly impossible to enforce them. We had ostensibly laws regulating the size of the mesh, and yet by some oversight, by some blunder, every time that these laws have been amended, they have included that same clause that the nets now in use may be permitted. I just refer to that as one thing.

Mr. BISSELL.—It was an oversight.

Mr. HAMPTON.—I suppose the idea was, there was a constitutional question involved there, that they could not take property now in use. I suppose that was the idea. If that was the idea it nullifies absolutely any enforcement of that law. That is an illustration of the fish laws, and many of our game laws are so frail that it is utterly impossible in Michigan, until these defects are corrected, to have an enforcement of most of them. So that I believe that the first thing to do is to have the laws that can be enforced and then I will say, have a system of wardens that you will agree upon to have those laws enforced.

Mr. WILMOT.—I beg to intrude again for a few minutes, particularly in regard to the remarks that came from Mr. Bissell. His view would seem to be to establish a sort of sliding scale for the close season for fishing.

I may say to you that I have constructed fourteen hatcheries in the Dominion of Canada, from the Atlantic Ocean to the Pacific, and my experience of twenty-five years proves to me beyond any doubt that there is a very little variation with regard to the spawning time of the salmonidae in that great extent of territory. We have taken whitefish in Manitoba, whitefish in the Georgian Bay, whitefish in Lake Ontario and at other points, and we do not find beyond three or four days' difference of the time in which the great spawning time takes place. We have salmon hatcheries extending from the Atlantic coast to the Pacific and we find but very little deviation, not beyond a week or ten days, of all the eggs we gather for our hatcheries. We have salmon trout that we gather in Georgian Bay, along Lake Ontario and elsewhere, and, in fact, it only deviates a few days in regard to time when the eggs are perfectly ripe for impregnation.

So under those circumstances the Dominion Government has thought proper to select a period which will cover all the locations between the Pacific and the Atlantic as far as a close season is concerned. They find that the salmon-trout and the whitefish will be covered by a close season taking in the month of November. That also includes

herring. If you are going to give a part of a season, eight or ten days, it will amount to nothing, because they do not spawn in that time. Some fish are a little further advanced when they approach the shores for reproduction than others, and you must get a certain limit in which you cover the greater proportion of the spawn, and our experience of twenty-five or thirty years shows that the month of November will cover the period of spawning of the whitefish in the northwest territories, in Manitoba, in Georgian Bay, in Lake Huron and in Lake Ontario and elsewhere where we have been manipulating fish. The consequence is that I think if you wish to have a variable period, you will not be carrying out what is correct with regard to the protection and propagation of your fishes. Take only one limited period of time and that will cover two or three of the more important species and let that be kept thoroughly and efficiently and you reach the point which you are aiming at; but, to have a sliding scale with regard to a close season, having one time in one state and another in another, to my mind would be a fallacy and amount to nothing whatever.

Mr. OSBORN.—Mr. Chairman and Gentlemen of the Convention—We cannot get, sometimes, home rule when we want it, and it is not policy for this convention, I think, to ask of the legislatures of the states to enact laws which will stop the fishermen from fishing in November. I do not believe one of them will grant it. You will get nothing. In our state we have shortened the time to thirty-five days for shooting quails and we have done it gradually. We commenced with sixty-five days and there is scarcely a sportsman in Ohio to-day who would be willing to grant an extension of the time, for they find that in the thirty-five days of open season we have an abundance of game, and it is not possible for them to reduce the quantity of game by shooting.

If we could have five days, say at the close of the season before the fish quit spawning, with no nets at all, we would have a great quantity of fish spawned, naturally. As Mr. Bowman has shown, one Sabbath day or two Sabbath days of the shad season in New York gives plenty of shad from which to take the spawn. The shell fishermen of New York and Connecticut have hit upon a plan for the preservation of their shell fisheries that is a perfect success, and the shell fisheries of the Chesapeake Bay will have to come to the same—the leasing of grounds upon which the shell fish grow and are produced. We will have to come to this upon our lakes, the leasing of the fishing grounds, for only upon leased grounds do we reach that enforcement of observance of law which will make the fishing perpetual. We have the decision in Ohio of some of our best lawyers, showing that this is constitutional and that it is in the power of the state to lease the fishing grounds. Now, you can see that leases could be executed in such shape as to put the conduct of the fishing, the ways for the fishing, the days for the fishing, altogether in the hands of the officers having it in charge, and this settles entirely and altogether the whole question. Canada, under the common ruling as given by our own lawyers, can do the same thing; they can lease their fishing grounds, and this will prevent the trouble.

Mr. WILMOT.—They are doing it now, sir, and always have.

Mr. OSBORN.—That only goes to show we can do it too, but upon the opinions founded upon general law and good reason, it can be done upon both sides of the water, and I think if this convention will consider the feasibility of leasing and its desirability, and recommend that, we will do a great deal, but I believe if we ask the state legislatures to prohibit fishing during the month of November, we will accomplish nothing. We may accomplish a good deal upon the other hand. This matter has been considered by our fishermen and there are a great many difficulties in the way, but they are principally selfish difficulties, that is, difficulties between the fishermen and the location of their nets, but if they do not do something they will have no fish to catch after a short time.

The SECRETARY.—Mr. Chairman and Gentlemen—I have been listening to the remarks made this evening upon this subject, and I must say that it is a very deep and very knotty subject to settle. I think we have lost sight of one thing that was recalled to me by the observation of Mr. Booth in his letter in regard to meeting our neighbours across the water, the Canadians, and we should bear in mind that their territory covers the entire north shore of our inland great lakes and that they have not only passed these laws of close seasons, but they have gone still farther and appointed a committee this last fall for the purpose of conferring with the people of the United States in reference



to these great lakes and the fisheries. Now, the thought has occurred to me that after all our discussion, it does not seem possible for us to agree, and as Mr. Bissell has remarked, this is a matter that requires a great deal of study. I think that six of the states bordering on the great lakes are to-night represented. Three of them are not represented, Pennsylvania, Illinois and Wisconsin. Considering the importance of the matter, and the many questions arising to be settled and interests to be considered and subserved, it occurred to me whether it would not be better for this meeting to appoint a committee empowered to draw up a petition or a request to be sent to the governors of the states bordering on the great lakes, stating the importance of the subject, and the fact that Ontario has appointed a commission, for the purpose and ask those governors and their legislatures to appoint a commission to meet with the Ontario Commission and take evidence and examine into this subject. Then they could report back to their different legislatures the legislation that they deem best and wisest to enact. Do you not think that by that we would arrive at a wise solution of the whole matter? Would it not be better than to go to the different legislatures and get enactments that would not agree? It seems to me that to accomplish anything we have not only got to get at the thing correctly before we go to the legislatures, but we have got to get some uniformity, and then besides all that we have to go there with a sentiment behind us that will carry us through. Such a proposition coming from such a commission, representing Ontario and all the states bordering on the great lakes, after plenty of study and consideration and testimony from parties interested, would be a step toward the settlement of the whole question. I merely make that suggestion as it occurred to me after hearing the remarks of you gentlemen. I think we ought to meet our Canadian brothers half way and show them we are interested in these fisheries of the great lakes.

MR. ANDRUS.—It has been the idea of the Minnesota Commission that the time is not far distant when we will have to do as our Canadian friends do and lease the grounds. I fully agree with the remarks of the gentleman who has preceded me, Mr. Amsden, that it would be wise first to have a committee appointed to draft a petition with such a request as he suggests. Speaking for the Minnesota Commission, I believe we would fall in with that very quickly.

MR. WILMOT.—I wish to say something with regard to the leasing of the fisheries. The Canadian Government both leases the fisheries and grants licenses, and each of those leases and licenses always have in them the statement that the close season shall be observed so that the leasing of the fisheries or anything of that kind will not interfere with the system we adopt in having a close season.

DR. SWEENEY.—It seems to me, gentlemen, that the closer we are to the law-making power the better. I do not know what influence your governor may have on the legislature here in this state, or in any other of the states, but in our state a respectable committee can do more with the permanent standing committee toward maintaining the laws than the governor.

I think the surest way for us to do is to talk to these gentlemen like brother Keyes and show them that we are honestly and earnestly working in their interest. It does not make a cent's worth of difference to me who catches the fish. I would like to see you catch twice as many fish as you did before, but I honestly and earnestly believe that the way to do that is to preserve the fish by a close season and give them a chance to reproduce themselves, and we will supplement the natural process by fish culture. And if we can convince you that we are working in your interest, which I honestly think we are, and you would join your efforts to ours, there need be no contest; we can have these laws passed and the fish will be preserved, and you will get the benefit, not the fish commissions. We will get no benefit; it is our fellow citizens who are making their money by catching fish. We only ask you to join us in the effort to increase the fish business, your own business; it will not make a cent's worth of difference to any fish commission that I know of, but we are sincerely working in the interest of those who are making money out of catching fish, and I think if we can get together and show that there is no antagonism between the fish culturists and the fish catchers, the matter may be settled without any difficulty.

It is my earnest desire that such a meeting of these committees to be appointed will be brought about, and that we will formulate something that may lead to proper

legislation, which will conserve and preserve and extend the benefits that the fishermen are getting, and not only they, but through them the whole people will receive the benefit of it. That is as I take it, the whole of the matter, that we wish to preserve the fish we have instead of letting them be extinguished; to increase the supply, and that increase inures to the benefit of those who have their money invested in the selling and catching of fish. It seems to me that if we can come to an understanding with each other that there is no antagonism, it will be seen that we do not wish to oppress any man's business. I am sure all the fish culturists that I know would like to see them catch tenfold what they are to-day. That is the whole object of our efforts, and has been for years, and as I say, if we can come to an understanding with each other and show you these things, I think your business and your interests will be subserved beyond any other. We have been receiving this opposition from the fishermen for years, and at first it was ten times as pronounced as it is at the present time, and I feel encouraged. At first they were not willing to allow us to take the eggs, and now they gladly assist and do everything they can, give us room in their boats to take the eggs, and are glad we are doing it, and this last year the only jealousy I have seen on Lake Superior was because we did not have a man with each boat that went out.

Mr. HUNTINGTON.—Mr. Chairman, as I understand, this is a conference for the purpose of considering certain questions, and the first question before it for consideration is in relation to protection. The one now under consideration is, as I understand it, Should there be a close season for whitefish?

It appears to me there is a very great difference of opinion upon the subject here, and it seems to me that it is an abstract question which we have before us to be considered. I have listened with a great deal of attention to the arguments of these gentlemen from their various standpoints, and while we are not a legislative body, and not responsible to our legislatures, yet it might lead to a good deal of benefit if we could agree upon making a uniform recommendation, and I will make the following motion, "That it is the judgment of this conference that there should be a close season."

The motion was supported.

The CHAIRMAN.—The motion is now open for discussion. We have not heard from Mr. McDonald, and as he represents the Buffalo Fish Company, we would be very glad to hear from him.

Mr. McDONALD.—I think that first question should read: "Should there be a close season for herring, instead of whitefish?" I think the whitefish are all out of Lake Erie, and it is the herring we are after now. We have made up our minds that there should be a close season for the fish. We believe that everything should be taken out of the water on the 15th day of November, every net of every description. We do not believe at all in having a close season in the spring of the year. We think the pickerel is a fish that should be cleaned out of Lake Erie. We claim that they consume more herring than their own real value amounts to. There is really no money in the fish.

Dr. SWEENEY.—May I ask what fish you mean by pickerel?

Mr. McDONALD.—I mean the wall-eyed pike. We think a good deal of the Canada laws, in the way they stand now, and I suppose the dealers on this side will have some prejudice against us on that account, for the reason that we get a great many of the Canada fish. We think that the Canada laws, modified a little bit, taking that spring close season out of them and having a close season for everything in the fall of the year, would do a great deal towards replenishing the lakes. There was a letter read from a gentleman a few minutes ago which stated that the whitefish were apparently cleaned out. We are having more whitefish to-day than we ever had.

The SECRETARY.—Where do they come from?

Mr. McDONALD.—From Canada, from Lake Erie, Georgian Bay, Lake Superior and Manitoba.

The SECRETARY.—You do not get any from Lake Erie?

Mr. McDONALD.—We get our share of them.

The SECRETARY.—Are there any caught in your nets?

Mr. McDONALD.—Yes.

The SECRETARY.—What part of the year?

Mr. McDONALD.—We catch them in October and November.



Mr. KEYES.—Were there more whitefish this fall than last?

Mr. McDONALD.—Yes.

The SECRETARY.—You say you catch whitefish, at which end of the lake?

Mr. McDONALD.—Both ends. We have fisheries at both ends of the lake.

The SECRETARY.—On the American or Canadian side?

Mr. McDONALD.—Both sides.

The SECRETARY.—You get whitefish on both sides and at both ends of the lake?

Mr. McDONALD.—Yes.

Mr. WILMOT.—During the close season?

Mr. McDONALD.—No, sir; we never violate the close season of Canada. You know better than to do that, and that is one reason why we admire the Canadian laws. When they say you have to do a thing in Canada, you have got to do it. We tested that this fall on the herring, and they gave us orders to stop fishing, and we stopped.

Mr. POST.—I may say, so far as the Detroit River is concerned on the American side, that all the fish caught were caught by the Detroit Fish Commission, and they answered a useful purpose in furnishing spawn for reproducing fish. We caught all the fish that were caught on this side of the river this season, and practically all that have been caught for several years.

Mr. WILMOT.—I might state for the information of the conference that it is the same case with Canada, all the fish caught on the Canadian side of the Detroit River were caught by the Government nets this year.

Mr. KEYES.—In regard to this question of a close season, I will say we cannot make a law in Ohio which will close one part of the lake and leave the other part open. If we make a law it has got to be for the whole state.

The SECRETARY.—What are you going to do with Pennsylvania?

Mr. KEYES.—Pennsylvania, of course, is left out. Many of you are labouring under a decided mistake so far as the fishermen are concerned. There are no people on the face of the earth who are more anxious to keep up the fish supply of these lakes than the fishermen engaged in catching them for commerce.

The question of a close season is not a new question. You take the matter of the shad that Mr. Bowman talked about in the Hudson River. I would like to know when he would take them if he did not take them in the spawning season, that is the only time.

Dr. SWEENEY.—That is because they do not live in fresh water.

Mr. KEYES.—The trouble with the close season in Lake Erie is that you want to take the very month when we can catch the fish.

Mr. POST.—We propose to divide it.

Mr. KEYES.—I am not talking about the time at all; but you take the only time that the fishermen can take fish in paying quantities. If you could prove that by the close season of the month of November, you would replenish the waters of Lake Erie, you might have an argument, but I doubt very much if you could substantiate that.

Dr. SWEENEY.—There is Canada, that is a sample.

Mr. KEYES.—It is not at all parallel to the state of Ohio on the fish question. If you catch a she fish before it has spawned, you destroy the spawn just as much as if you wait until the spawning season and get it.

Mr. WILMOT.—You say there is no possibility of destroying the fish for spawning purposes?

Mr. KEYES.—No, I do not say that. What I mean is this: If we can leave enough ground, if the fishermen will not lay their nets so that the fish cannot get to their spawning grounds, your supply of fish will be kept up.

Mr. HARRIS.—I do not think sufficient stress has been laid on the question as to whether whitefish are fit for food at the time we propose for a close season, that is, during the spawning season.

A circumstance occurred in 1885 in England, during the period of the great Fisheries Exhibition, while the Chinese deputation were over there. They were surprised at the scarcity and price of fish in England. In their own country, which is the most densely populated country in the world, there are cheap fish and fish for everybody, but it is their religion which keeps it up. While the Chinese will eat rats at any

time, it is their religion not to touch a fish in the spawning season. They look upon it as poison, and the fact remains that in China, probably more than in any other country, there is a superfluity of fish, and fish for the whole population. It is not at all improbable if we go on in this country catching our fish out of season that we will have to learn what it has taken them a thousand years to learn, that we will destroy everything. In Canada we destroyed everything; we destroyed game and fish, and a good deal of the land. Everything is wasted. It seemed to come natural to destroy.

When we come to Lake Erie, the lake I know most about, I know just how much destruction has taken place there. When I was a young man it was one of the finest whitefish lakes in Canada, and you can imagine what the rush of whitefish 48 years ago was that came up the Detroit River to spawn and for nothing else. You destroyed them and they are gone. In Canada, in the position which I have recently been placed, though only temporarily, it occurs to me that we hold our fisheries in trust for the people.

The CHAIRMAN.—That is right.

Mr. HARRIS.—To see that they have for all time a supply of fish; that the country is not deprived of this fish.

Mr. KEYES.—I would like to ask you if you think it is right to catch a fish in a gill-net?

Mr. HARRIS.—I look upon the seine as the worst of all nets; I look upon the gill-net as the next worse, and I look upon the pound-net with a proper mesh as the proper way to catch fish in our lakes.

Mr. KEYES.—That is right.

Mr. HARRIS.—I believe there are more fish destroyed in the Georgian Bay, carried away in November by gill-nets, than are ever brought ashore.

The SECRETARY.—Suppose, Mr. Keyes, nothing is done in the way of regulating the fisheries of Lake Erie in the next five or ten years, what would become of your investments in your boats, twine and everything else; would it be a dead loss to you?

Mr. KEYES.—I do not think that makes any difference, though I will answer that question. I am perfectly satisfied that if some regulation is not entered into, the fishing outfits in Lake Erie in five years will not be worth five cents on the dollar.

Mr. HARRIS.—I have been asked what I consider the proper pound-net. I suppose that is meant for Lake Erie. I can only speak for our own side, but I think the proper pound-net for our side of the lake is an eighty rod lead, six or seven-inch extension mesh, four-inch mesh in the hearts and three-inch in the pots. I think our herring in Lake Erie are much larger than the Lake Huron herring and considerably larger than the Lake Ontario herring. I think our three-inch mesh will just catch the proper herring, and will allow a very fair sized small whitefish to escape. That is the net I think proper for Lake Erie, and I think it would be satisfactory to most of our fishermen.

Mr. WILMOT.—Will you describe to the conference the idea that prevails with the pound-net fishermen on Lake Erie as to the close season?

Mr. HARRIS.—Our pound-net men are quite willing to have a twenty-day close season, and I think you may say they are prepared for a month. There was a suggestion to make the close season from the 15th of October, but that was too much for them. They are quite prepared, and I think they look forward to having a proper close season. There are very few gill-net men with us and many of them have but a very small amount of capital invested, but our pound-net men usually have five or six nets and their steam tugs and ice-houses. Some of them have freezers, but it is not a very pleasant outlook for a man with several thousand dollars in the fishery business to look forward to that business getting worse and worse every year, and to look forward to nothing less than to have to sell out and start some other business. They are all beginning to have those views on this question, and they are all willing to listen to any plan that is suggested to improve their fisheries, so they may look forward to the improvement of their business from year to year.

The CHAIRMAN.—Gentlemen, is there anything more to be said on this question? I feel, myself, that I would like to talk on it, but I shall not delay you. There has been a great deal said and I should like to have alluded to what has brought this matter to



the attention of fish culturists, and to their disinterested way of looking at the matter. We have no antagonism to the fishermen, but we do feel the truth of the expression used by our Canadian friend (Mr. Harris), that we hold the fisheries in trust for the people for the future. I will not go on because the hour is too late, and if there is nothing more to be said, I will put the question.

Mr. WILMOT.—I move that the Chairman be allowed to proceed with his remarks. The motion was put by the Secretary and carried.

Mr. WHITAKER.—In my boyhood days I lived about sixty or seventy miles south of Lake Ontario, in the state of New York, and in the winter season of the year it was a customary thing for the farmers in that community to go to Chaumont Bay, and bring back in their sleighs large quantities of Lake Ontario fish. They would bring back trout, whitefish and ciscoes, and these were sold to the farmers all about that country and served the purpose of breaking up the monotony of the pork barrel, giving to the farmer a variety of cheap and wholesome food for his table. About twenty years ago I left the state of New York, and from information I have I know that within five or ten years from the time I spoke of the commercial fishing of Lake Ontario became extinct practically. It was not pursued for profit any longer by fishermen. This illustrates what fishing without restraint will do. The same thing is occurring in Lake Erie to-day, and the same is true of the fishing in the lower end of Lake Huron.

Look at Lake Huron in 1834, according to Blois's statement of its fisheries, and look at Lake Huron to-day. Blois in his Gazetteer, published in 1834, said of the locality at the Straits of Mackinac, the fish are so plentiful here that for ages they must furnish the principal article of food to the large number of people who shall settle upon the shores of these lakes. It was true, and the size of the fish was magnificent. But Blois never could have dreamed that in fifty or sixty years from the date at which he wrote there would be settled, in the six states bordering upon the shores of these lakes, one-sixth of the entire population of the United States of America. He never could have dreamed that in every important fishing port upon those lakes there would be freezers of immense capacity which would make it not only possible but profitable for fishermen to fish the entire year, except when the elements drove them from their pursuit.

The fishermen say to our commission when we go to them for the purpose of gathering statistics, that year by year the meshes of the nets are contracted, they grow smaller and smaller. I have had that information from fishermen since we have been in session here, and the attempt at all times and at all places is to take fish with a gradually decreasing mesh. The result of it is that there are to-day hundreds of tons, I believe, of small whitefish that are taken under the guise of herring and are sold in the markets for herring.

Another thing that appeals to us as commissioners, and we have no other interest in the fisheries except to subserve the interest of the public at large, is the fact that the work we are doing to-day, which the states engage in so willingly, is for the purpose of perpetuating this food for the people, and incidentally the fishermen reap the benefit. The trouble is that they take our fish before they ever get to a spawning age, and there comes in the iniquity of the thing. There are fishermen all through these lakes who desire some sort of close season imposed or some sort of restriction laid to prevent the waste.

These things appeal to us as commissioners. We have no interest in it except as a public undertaking. We say to the fishermen, look at this matter in the way we look at it. If you can leave in the waters these fish that in a year or two will be merehantable and of value to you, why not permit them to be left there? Why take them out when they are immature and have never come to a spawning age? In that way we lose the great benefit of our work of artificial propagation, and I say to you now what I firmly believe, that in the course of a very few years if this thing goes on as it has been going on, it will all stop. I say to you fishermen that it is to your interest as well as to the interest of the public, whom we represent in this matter, that some reasonable regulation should be imposed. I would not hear to a regulation that would drive a man out of his business, but let us have some reasonable regulation that will not permit you to take out these fish when they are immature, but will leave them in the lakes until they are marketable and of value.

As far as the whitefish is concerned, it is a tender fish, and I am assured by men who know that they are so tender that very many times in handling they are injured so they die. I cannot quite understand the idea—I may be wrong—I may not be informed, but what is the use of taking these fish in nets if you are going to put them back again? Why not leave them in the lakes? Why not so construct your nets that you will not take them at all, but so they will take only the fish that are of merchantable size? It seems to me that that ought to be a reasonable regulation to lay upon the fishing industries.

Let me say one thing with reference to a close season. In Canada they have the month of November closed. Their fishing is profitable. There is no complaint there from the Canadian fishermen, as I understand that the fishing is not profitable; but the only thing they do say is that our neighbours are fishing without restriction across the border, so why not allow us to go on and do it? I am thankful to see that there is one place on God's footstool where they do enforce a law that seems to be a reasonable and just law. I wish we might do it here.

There were some remarks made here with regard to a licensing of grounds. I assure you, gentlemen, that if we go along for just about five or ten years more in this way you can license your grounds for growing celery or fresh water oysters, but you cannot license them for whitefish. The fish will be gone. There will be nothing to lease. The state will have no fishing grounds that there will be any money in. There will be no temptation for a man to rent fishing grounds here at all. The destruction of the small fish is the thing, if it is possible, that we should overcome. I hope we shall get together on this and that we shall adopt the resolution of the conference committee that may report here to-morrow if the report commends itself to us. Let them report here to-morrow morning at 10 o'clock; let us have that conference committee; let us see what we can do, and I shall be very glad indeed if we can come to some conclusion. Our legislative bodies ought not to be apart from each other in the matter of regulation. We ought to be united, but it is hard to be met by the statement that no regulation will be submitted to in the matter of restriction. If we are wrong in this thing, this conference committee can come to some conclusion and submit it to us, and we can come to a determination as to what ought to be done.

Mr. McDONALD.—Before we close I want to say that you are wrong in thinking that we are not in favour of a close season.

The CHAIRMAN.—I did not so understand your position, Mr. McDonald.

If there is nothing more to be said on this question I will put the motion. The motion is that the conference concur in the sentiment that it is their belief that there should be a close season.

The motion was carried.

The CHAIRMAN.—Now, what will you do with the other resolution that was proposed, for the appointment of a committee?

Mr. BOWMAN.—I move a committee be appointed.

The CHAIRMAN.—It is moved that a committee of conference be appointed, one representative from each state and also representatives from the fishermen.

Motion carried.

The CHAIRMAN.—How shall that committee be appointed?

Mr. POST.—By the Chair.

The CHAIRMAN.—Anticipating that perhaps you might want me to appoint a committee, I have prepared a list.

Dr. SWEENEY.—You are no politician.

The CHAIRMAN.—I can see some embarrassment to Mr. Wilmot in connection with an appointment on this committee, and yet he ought to serve on this committee.

Mr. WILMOT.—I think some other gentleman had better act in my place. I should be happy to render any service I could. This is outside of the jurisdiction in which I have authority.

The CHAIRMAN.—I think I will appoint Mr. Wilmot as a consulting member of the committee.

Mr. WILMOT.—Is that in a medical way, in regard to seeing that the fish are not interfered with?



The CHAIRMAN.—Yes; your appointment is in a purely Pickwickian sense. I will appoint Mr. Bowman, from New York, Dr. Sweeny, from Minnesota, Mr. Keyes on behalf of the fishermen, Mr. McDonald on behalf of the fishermen, Dr. Parker, of Michigan, Mr. Osborn, of Ohio—he has left unfortunately, I find.

Dr. SWEENY.—Mr. Chairman, if my colleague, Mr. Andrus, will take my place on that committee I will be very glad to have him do so, because he is perfectly familiar with all the laws, having recently studied them, and he knows what the other states have done.

The CHAIRMAN.—The Chair would be very happy to excuse Dr. Sweeny if the circumstances were not so that he cannot do so, he therefore will appoint Mr. Andrus as the other member of that committee from Ohio. I will suggest that this committee may call an informal meeting at the close of this session, so that they may have the advantage of consultation with Mr. Keyes, who, I understand, is going away to-morrow. I will also appoint Mr. Gould, from Maine.

Mr. BOWMAN.—Mr. Secretary, I move that Mr. Whitaker be also appointed a member of that committee.

Motion carried.

Adjourned to December 21, at 10 a.m., 1892.

Mr. BOWMAN.—The special committee that was appointed last night is ready to report, and begs leave to submit the following:—

“DETROIT, 21st December, 1892.

“*To the Fisheries Conference:*

“GENTLEMEN,—Your committee, to whom was referred the question, ‘whether or not there should be a close season for whitefish, lake or salmon-trout and herring,’ also what means should be taken for their protection, would report:

“1st. All small fish and those unfit for food of all kinds when taken in nets, should be replaced in the water where taken alive, and that fishermen should not be allowed to take such fish on shore, nor expose them for sale.

“2nd. That no string pound of nets used in the lakes shall extend more than four miles from shore.

“3rd. That one-half part of all channels between islands or elsewhere where fish migrate to spawn, shall be kept free from nets of all kinds at all seasons.

“4th. That all whitefish taken of less than sixteen inches in length, and all salmon-trout less than two pounds in weight shall be immediately returned to the waters where taken and shall not be exposed for sale. That all herring less than eight inches in length, and all wall-eyed pike less than twelve inches in length, shall be returned to the waters where taken and shall not be exposed for sale.

“5th. That the month of November in each year be made a close season in all the great lakes for whitefish, herring and salmon or lake trout.

“Your committee would further recommend that all penalties fixed for violations of any laws that shall be enacted shall be made not only to apply to those who take fish, but also to all persons who buy, sell, transport or have the same in possession.

“The 1st, 2nd, 3rd and 4th recommendations were unanimously adopted by your committee.

“The fifth recommendation, making the month of November in each year a close season for whitefish, salmon-trout and herring was adopted, all the members voting “aye” except Mr. Keyes, from Ohio, who voted in the negative.

“*Resolved*,—That the law should authorize the seizure and destruction of nets used in violation of law.”

Mr. AMSDEN.—Was any consideration taken of the size of mesh in gill-nets?

Mr. BOWMAN.—No, that was not considered. No recommendation was made by the committee in that regard at all.

Dr. SWEENY.—I move its adoption.

Mr. GOULD.—I will second it.

The resolution as amended was then unanimously adopted.

The CHAIRMAN.—The next matter to be discussed is close seasons for brook trout, grayling, California trout, brown trout, Loch Leven trout, land-locked salmon and small-mouthed bass. I think there is no objection to the close season now in force for all those fish, unless it be black bass. Mr. Bowman, have you any close season for black bass in New York?

Mr. BOWMAN.—I am not certain about that. I will look it up. Yes. For black bass, or Oswego bass, the close season is between the 1st day of January and the 1st day of May.

Mr. ANDRUS.—In Minnesota it is from the 1st day of December until the 15th day of May.

Mr. WHITAKER.—I think we have a close season in Michigan.

Mr. HAMPTON.—There is a close season, although they can be taken at any time with a hook and line. The only close season is in regard to spearing, and that is practically nugatory.

Mr. WILMOT.—In Canada that would be perfectly useless. The 15th of June is our ending, but we find even that is too early. We should extend it to the 1st day of July. The black bass requires a longer season; it is so solicitous of its egg and of its young. The parent fish remains with its young for some time after they are hatched, hence it is my experience as a close observer of these things generally, that the close season should extend to the 1st day of July.

Mr. WHITAKER.—I want to say that, so far as the American waters are concerned, at the St. Clair Flats there is little fishing done before the 15th of June, and those that are taken are usually taken off the spawning beds, and their flesh is insipid and of no account. I had as soon have a piece of bob veal as to have a black bass that is caught, for instance, at the Put-in-Bay Islands in May or June. They are tasteless, and if the limit is fixed it seems to me it ought to be not later than the 15th of June. Judge Speed is much interested in the propagation of fish and their protection, and no doubt the conference would be glad to hear from him.

JUDGE SPEED.—I don't know as I have anything to say in addition to what other gentlemen have said. But I think spearing ought to be stopped more than fishing by any other means. There is a gentleman here from Chatham who was speaking of fishing over in Mitchell's Bay. Similar conditions, I think, prevail on our side. Mitchell's Bay is a part of what is called St. Clair Flats, not far from Chatham. The fish run in there in water that is not more than three or four feet deep where you can see the bottom readily at any time, and where they lay their eggs, stay there for a time, and watch them, and they go there, on our side at any rate, and spear in large numbers, because they can see them readily and get at them. They go there as early in the spring as they can go and continue spearing right along. It ought to be stopped because the large number of those fish caught there are almost useless for any purpose. In addition to that they troll on those grounds, and large numbers of fish are caught in that way. They troll with spoon hooks and also with minnows, and they catch fish as late as July on those spawning grounds. Then they are just commencing to run off in deep water—between the 15th of June and the 1st of July. Very many of the fish are large, and I would like to see that sort of thing stopped, if it is possible, or the taking of any kind of fish on spawning grounds. I would fix the period as late as the 15th of June, rather than the 1st of June or the 15th of May, because then you would insure the stopping of fishing on those spawning grounds. Of course, in some waters you can fix the period much earlier, but in our water they spawn late in the season.

I was not present yesterday, but I am very sorry to learn that the conference adopted a resolution limiting the taking of fish by the weight rather than the size. Because I think you will find in this state, and I think too, in Canada, that all questions of fact must go to a jury, and when you come to submit that question to a jury, you will find that the weight of fish is so hard to determine that they will find in favour of the party complained of. If you fix on the size of fish you have something at which they can get at. Almost anybody can tell the length of fish within one or two inches by sight, but not so by weight. You never have scales present, and you leave a loophole where many people escape. If you fix the size of fish, and say that fish of a certain length, no matter what it weighed, it shall go back in the water, you fix something that



will be definite, and almost any one can determine it with the eye. If you fix it by weight, the question will be asked before the jury, "Did you have any scales? Do you know anything about the weight of that fish?" And you will find any quantity of fish will go to the market on weight, where you can very readily determine by the eye on size. It may be arbitrary, because one fish of a certain length will weigh more than another fish of a certain length, but you arrive at it close enough for all practical purposes, for the purpose of conviction, and that is what you want to get at.

Mr. HAMPTON.—I believe that suggestion is a wise one, for I have found it so in practical experience, and I think it would be well to reconsider that question and submit an amendment that will cover the weight as well as the size desired.

Judge SPEED.—No whitefish of less than twelve or fifteen or twenty inches in length, whatever you may determine upon, and then you will have something definite upon which to go.

Mr. WILMOT.—Allow me to suggest, as the conference is going down to Sandwich hatchery they might have ocular demonstration of the length of fish, because there are a number of whitefish there, and we might better come to a conclusion as to the right length of fish. I perfectly agree with the gentleman.

Judge SPEED.—You can get at it by taking a number of fish and weighing them, and then determine their length, and you will find they won't vary an inch. There is then something absolutely certain to go upon, and fish less than fifteen inches in length shall not be taken under any circumstance.

Mr. HAMPTON.—In order to bring the matter up I move you that we reconsider the report of the committee on the size of whitefish taken.

Mr. Hampton's motion was seconded and unanimously adopted.

Dr. PARKER.—I move you this question be postponed until after we return from our trip down the river, so that we can there determine as to the proper length of fish, unless we can determine right here. Perhaps Mr. Keyes could tell us. What we want to get is the length of the pound-and-a-half fish.

Mr. WHITAKER.—I will ask Mr. Craig, who is a practical fisherman, to give us some information on this point.

Mr. CRAIG.—I should think fourteen inches a good length of whitefish; I should not think it would go fifteen inches—that is, the length of a whitefish that would weigh a pound and a half.

Mr. KEYES.—I think, about fourteen or fifteen inches.

Mr. HAMPTON.—I move you then to strike out the words "pound and a half," where they occur in the resolution, and substitute "fifteen inches."

Mr. WHITAKER.—It seems to me it would be a very easy matter to determine the length of a pound-and-a-half fish. Mr. Craig can do it. I don't think the live fish down there are of that weight.

Mr. KEYES.—I guess there are very few Detroit River fish that will weigh two pounds.

Mr. WHITAKER.—Yes, we have sold our catch on the average of two and a half pounds. We have sold our entire catch to dealers of fish, caught on the Detroit River, at two and a half pounds weight, the weight being the averaged.

Mr. KEYES.—That is bigger than they catch them now.

Dr. PARKER.—I desire the resolution laid on the table. It would be a good object lesson; we might learn something about the weight of fish by taking some practical observations down there.

Mr. WHITAKER.—What would be the objection to the appointment of a committee of three to determine that question and report to us immediately upon our return? The Chair will entertain such a motion.

It was moved and supported that such a committee be appointed. Duly carried.

Judge SPEED.—I think, gentlemen, you will probably find from experience, that wall-eyed pike, of which large numbers are sent here from Saginaw Bay, and perhaps other localities, a great many of them are smaller in size, and you will have to adopt a different rule in regard to them than to whitefish. You should make a difference in weight in regard to those fish as well as a difference in size.

Mr. WHITAKER.—It would certainly be a good idea, and another thing that escaped me at the time: it might be a question, under a prosecution, whether it was the weight

of a dressed fish or the weight of a green fish. The Chair will appoint on that committee, to report at once on our return, Dr. Parker, Judge Speed and Dr. Sweeny.

JUDGE SPEED.—I don't think I can visit the hatchery.

Mr. WHITAKER.—I will then appoint Mr. Wilmot. The committee will consider that matter and report immediately upon our return.

Mr. CRAIG.—I did not come here to say a word, but there is one thing that has been mentioned that I am, perhaps, a crank on, and that is the fouling of our waters. I think if we in Michigan had kept our waters as clear as they have been kept in Georgian Bay, we would have whitefish on the spawning grounds just as we had thirty years ago. Speaking about gill-netting on Georgian Bay, there are men there to-day who I dealt with forty years ago—I met them here five or six years ago, and they have used the gill-nets right along. I do not believe the gill-nets are such poisonous affairs. I have sold more gill-net fish than any other kind. If a fish gets foul, he goes on the offal heap. I do not know whether we have laws to prevent sawdust from being thrown into the lake, but if we have, they are not enforced. It is destroying and driving off many of our fish.

Mr. KEYES.—I would like to ask you one question: What, in your opinion, has destroyed the whitefish in Lake Superior? There is no sawdust thrown in the water there?

Mr. CRAIG.—There has never been big fishing in Lake Superior, except at White Fish Point, where Booth & Company are establishing their fishing nets. I have tried fishing there. It is a very deep lake, and the only place you can set gill-nets is where it comes up shoal.

Mr. KEYES.—I would like to ask Mr. Craig if he would eat a gill-net fish that he has hauled in, if it comes up stiff in the net?

Mr. CRAIG.—Well, I don't know. Yes, I guess, perhaps, I would.

Mr. WILMOT.—Pardon me, if you please, one moment. I am intruding upon you too much, but the subject that has been touched upon by the gentleman, I think it is desirable to make further mention of, and that is sawdust. There can be nothing more destructive of fish than the depositing of sawdust in the rivers and lakes. Wherever vegetation of any kind is stopped at the bottom of the water, there fish life is also arrested. In fact the origin and the production of almost everything extant is vegetable life. Upon land where there is no vegetation, there is no animal life. In waters where there is no vegetation, there is no fish life. If you put on the bottom of the waters a foreign substance like sawdust, vegetable life is stopped, and consequently insect growth is stopped, and consequently fish life is stopped. Minute crustacea of various kinds are fed upon the juices of these plants, which feed the smaller fish, and in turn the larger fish feed upon the smaller.

Mr. KEYES.—I want to beg your indulgence, as I have to go away, but if the gentlemen of this conference will take up the question of gill-netting, I would like to have them ask the Buffalo Fish Co., of this city—which has a branch house here, and they are as large a fish concern as there is in the United States, and fish in all waters—I would like to ask their opinion as to the merchantable and eatable qualities of the ordinary fish that are caught in gill-nets or in trap-nets. Don't understand me to say that all fish caught in gill-nets are bad. Not by any means. The fish that is alive is probably good enough to eat, though I never saw one in my life but what was in a certain degree bloated. I would like to have you gentlemen ask the Buffalo Fish Co., or anybody that has been with them any length of time, how the fish compare with pound-net fish in their business? Which fish can they sell on the market the best? Which fish carries the best, and which fish gets to the consumer in the best shape, in their opinion as dealers in fish? They are not catchers, I believe, to any large extent. I believe they are simply buyers of fish, although they do fish, of course. If there are any other gentlemen here, I don't know as there are, who are engaged in the business, I would like them to answer. Of course, if a man is engaged in gill-netting, he won't admit these things. He has his money in it, but if he is engaged in both systems, he will admit it in ninety-nine cases out of a hundred, and he will also tell you to what extent the gill-netting from spring to fall is practised in the northern lakes. It is not so much practised in the waters of Lake Erie, because the waters are warm, consequently they go up



north; but you catch fish in warm weather and they very soon decay when they are exposed to the sun, and that is the reason why gill-netting is not practised in the upper end of Lake Erie in the summer months.

Mr. WILMOT.—I am afraid I am intruding, but when I hear arguments of this kind I feel it my duty to put before this conference the knowledge I have on this point. We have been taking the evidence of the agents of the Buffalo Fish Company on Georgian Bay and on Lake Huron, and those agents tell us they get better fish and larger fish in the gill-nets than they do in the pound-nets, for this reason, and it is a very rational one: The gill-nets have meshes of five inches and they get only the large fish, and they find that the large fish are the more marketable fish in market than the smaller fish. There is no doubt the fish are not as sound from the gill-nets as they are from the pound-nets, but the pound-net as now used is far more destructive than the gill-net.

On motion of Mr. Hampton the resolutions before the house were laid on the table until the reassembling this afternoon.

Dr. SWEENEY.—I wish to present the following resolution:—

*Resolved*, That it is the judgment of this conference there should be a close season for bass and that such season should be between the 1st of April and the 15th of June, and all kinds of fishing, including spearing, should be prohibited in the close season.

Mr. WILMOT.—The proper season should be from the 1st of May to the 1st of July.

Mr. HAMPTON.—There is one thing that seems to be overlooked, and that is the getting of something that the legislatures will adopt. The recommendations you pass upon will have no force with them. The Fish Commissioners know something about the efforts necessary to influence the legislators, and I suggest that you make the close season as reasonable as possible.

Mr. WHITAKER.—Let me say one word in reply. If there is anything that ought to have influence with a legislature it is the opinion of this conference. It was called into existence by the authority of the province of Ontario, and this is a continuation of those meetings. It seems to me the recommendation of the representatives of the different states, called upon to meet and discuss these questions, certainly ought to have some force before a legislature.

Mr. AMSDEN.—I am rather inclined to think this conference had better leave that question alone. I think if we take up the fish of the great lakes here and give our attention to them we shall accomplish all we can expect. The distribution of black bass covers so much territory, and there are such differences in temperature, and they vary so in time of their spawning season, I rather think we hadn't better try to pass any such resolution. Better leave out the black bass. It is the dearest fish to me there is, and I think their domestic habits are so much to be admired that we cannot do too much to protect them, but at the same time I think we had better leave that alone.

Mr. WILMOT.—Our Dominion Government covers several states, and we have taken the trouble to ascertain from these different states, which include Ontario, Quebec, Manitoba, Nova Scotia and New Brunswick, about their spawning habit, and we find there is very little deviation at all in regard to their spawning periods in the different waters. We find that the black bass, as a rule, almost invariably spawns in all these waters during the months of May and June, more particularly the latter end of May and the beginning of June. But, as previously remarked, this fish is so solicitous of its eggs and its young that it remains longer in the act of spawning and taking care of its young than any other fish, and therefore, the months of May and June should be adopted as the proper close season. I do not think you could get a better period than May and June. If you commence earlier than that you infringe on the angler too much, and if you allow them to be taken from the 15th of June to the 1st of July you interfere with the parent fish in the care of its young. I speak from an experience of thirty or forty years.

Mr. WHITAKER.—We will now vote on the resolution.

*Resolved*, That in the judgment of this conference there should be a close season for black bass and that such season should be between the 1st of April and the 15th of June, and all kinds of fishing, including spearing, should be prohibited in the close season.

A vote was taken and the resolution was adopted.

The conference then took a recess until 4 p.m.

WEDNESDAY, 21st December, 4 P.M.

Chairman WHITAKER.—The conference will please come to order. I will ask Mr. Bowman to perform the functions of presiding officer, as it becomes necessary for me to be absent the rest of this session.

Chairman BOWMAN.—We will now listen to the report of the committee of three appointed to report back to this conference the size of whitefish.

Dr. PARKER.—I will report that we found in weighing the fish that one fifteen inches long weighs one and one-half pounds, and one seventeen inches long weighs two pounds. So that we would recommend that no fish less than fifteen inches should be put upon the market.

Mr. WILMOT.—Don't you think that a rather small size, after all?

Dr. PARKER.—Yes, it is pretty small.

Mr. AMSDEN.—Two pounds is small enough, and it seems to me as low as we ought to go, but we will have to get it through by degrees.

Mr. WILMOT.—No fish under sixteen inches then, say.

Dr. PARKER.—Mr. Craig stated before the committee that that fish (referring to fish on the table brought from the Sandwich hatchery) was as small as ought to be put on the market; should be the limit, in his idea. I think we ought rather to exceed the limit than to go under it, as suggested by Mr. Wilmot.

Chairman BOWMAN.—Then do you report that the limit should be sixteen inches in length?

Dr. PARKER.—Yes, sir.

Chairman BOWMAN.—Do any of you gentlemen wish to be heard on this question? The committee have reported that all whitefish taken of less than sixteen inches in length shall be returned to the waters where taken, and shall not be exposed for sale. If there are no remarks I will put the question.

The motion prevailed.

Will the secretary read the report as amended in full?

(The secretary reads the report.)

Mr. ANDRUS.—I move the adoption of the report as amended.

(The motion was supported by Mr. Huntington.)

Unanimously carried.

Mr. WILMOT.—Before we adjourn, I would beg to tender to this conference the thanks of the commission of Canada who have attended for the courtesies extended to them. We feel deeply gratified that we should be permitted to come here by the kind invitation you sent, and we now wish to tender our thanks for the courtesy that has been extended to us.

Chairman BOWMAN.—The secretary and stenographer will make note of what has been said. It has been very kind of you, indeed, gentlemen, to come here, and we desire to make you one of us as much as we can.

Mr. HARRIS.—I can only add my thanks. I have been very happy in attending this meeting. I shall not forget my visit to Detroit for some time, and I am very glad that you gentlemen have been pleased.

The SECRETARY.—I want to make a motion that it be the sense of this meeting that further meetings of this conference are desirable, leaving it open to be called whenever the spirit moves. That it shall be subject to the call of the Chairman at any time, whenever the necessity arises.

Dr. SWEENEY.—I will second that resolution.

Dr. PARKER.—How would it be to make it an annual affair, anyway?

Dr. SWEENEY.—It would be very pleasant to me personally.

Dr. PARKER.—The question is whether there are enough subjects to come up for discussion.

The SECRETARY.—I think you will find that enough subjects will come up, and I think it would be well to embody it in the resolution.

(The resolution was unanimously adopted.)

Chairman BOWMAN.—I would like to say before we separate, on behalf of the American members of the conference, that we are all delighted and very much pleased with you gentlemen from Canada, and there is a general feeling that we would like to get nearer together. Our interest in fish matters are in unison and it would not only be pleasant always to have you with us, but I think it would do us both good. Certainly, we feel that we are receiving good from your hands.

The conference then adjourned *sine die*.



## B.—THE CULTURE OF FISH.

BY LATOUCHE TUPPER.

Day by day, month by month, year by year there are men in the workshops, in the laboratories, on the waters and in the fields studying, experimenting, inventing for the benefit of mankind. Never has the world seen such a time of almost universal peace, with its consequent blessings. The present era stands pre-eminently the era of invention. Steam and electricity have rendered the settlement of the interior of America, Australia and Africa possible. Medical science has, with the absence of wars, lowered the death rate of the human family so that the increase of the population of the world is now enormous. To meet the increase and feed the hungry mouths new lands are being sought for the production of food, improved methods of feeding stock and economy of food production are eagerly sought. Millions of acres of fruit trees are being planted, the waters of every sea are searched for fish food, and more and more are our fresh waters called upon to supply the ever increasing want. Fish culture though practised in a desultory and crude manner in some European countries, and in China for years, never advanced until forced on the notice of the Governments of United States and Canada by the work of three gentlemen whose names follow. The first organization in the United States was in 1871, Professor Baird being chairman. So impressed was the Government by his report, that in 1872 they appropriated \$15,000 "for the introduction of shad into the waters of the Pacific States, the Gulf States and of the Mississippi Valley, and of salmon, whitefish and other useful food fishes into the waters of the United States to which they are best adapted." From this beginning the work has increased so much that now the Commission plant yearly over 200,000,000 fry in the United States, while many States have separate commissions, notably those bordering on the great lakes such as Wisconsin, Michigan, New York, etc. As an instance Michigan planted in 1890:

Whitefish.....	109,700,000
Brook trout.....	2,578,000
Pickereel.....	44,340,000
Carp.....	5,798
Loch Levin trout.....	30,000
Swiss trout.....	17,360
Schoodic salmon.....	44,888
Brown trout.....	60,000
California trout.....	16,000

This alone by one state in addition to the work of the United States Commission. Canada has thirteen hatcheries in operation and as vigorous a policy as regards fish culture should, and doubtless will obtain here as they had across the lines. We have long led the United States in the protection of our fish, and the present completeness of our work regarding fish culture is largely attributed to the life-long work of Mr. Wilmot, and others in Canada. Indeed it is practically recognized by the fact that some of the most successful hatcheries in the United States are managed by superintendents who had spent their younger years in the Newcastle Hatchery, the parent institution of Canada, and there fitted for the important positions they now occupy.

Aqua culture, or fish culture, is a new science which "has sprung out of modern inquiry in response to our necessities," (Michigan Fish Commission) and is one of the most useful as well as beneficial sciences undertaken during the last fifty years. It is but in its infancy, it is true, but it is "getting a big boy now," and is advancing with rapid strides, simply for the reason that some men gave their life's work to it—by repeated representations year after year—got grudgingly at first and far too sparingly



even yet, that assistance from the Governments of their countries, so essential to the development of the work in the interest of the commonwealth. The three men who stand above all others in this connection are, in the United States, Prof. Baird and Seth Green, and in Canada, Samuel Wilmot.

The demand for fish food is constantly on the increase, even more in proportion than the population, and to meet it on our great lakes an entire change of modes of fishing has been inaugurated instead of the Mackinaw boats and small gangs of gill-nets—and gill-nets alone—each man owning his own boat and in some cases two or three. The business is now in the hands of capitalists, one proprietor alone in Lake Huron fishing seventy-five miles of gill-nets! The pound-net, a deadlier device than the gill-net, is largely used, and the gill-net fishing is now carried on by steam vessels. Not only for home consumption are the enormous quantities caught, but for south, east and west; to inland cities and towns are they sent, not salted or dried and smoked as formerly, but in a more attractive form, which partly accounts for the increased consumption, and the increased price to the fishermen, I was going to say, but I will say companies. The fish are now either packed fresh in fish cars in ice, each having a capacity of about two tons, or they are frozen and held in refrigerators for future orders. The drain on the lakes has been enormous, and the inevitable result was taking place, viz., depletion, until the hatcheries commenced to replace artificially the artificial drainage. At first there was no greater enemy of the hatchery than the fishermen. They wanted a "free leg," and no close season—like those who killed the buffalo, they wanted to kill, slay and sell. Let those who come after look out for themselves! Fish got scarce before they thought they would, and now the cry from all the fishermen is, Give us hatcheries, and more hatcheries. Hatcheries and protection must go hand in hand.

The soil gives to the farmer its return for cultivation, but he must cultivate it and he alone has the right to the crop. The waters belong to the commonwealth and will return more than one hundredfold the cost of cultivation, but being common property can only be cultivated by the commonwealth, therefore it is fit and proper for the Government to increase this source of wealth, comfort and even luxury to the fullest extent for the benefit of the people. Not only should this be done on the great lakes, such as Winnipeg, Lake of the Woods, Manitoba, Winnipegosis, and the great eastern lakes, but over our prairie country there are hundreds, nay thousands, of streams and lakes which can be stocked with some variety of fish to the pleasure, profit and comfort of the settler. Artificial propagation has successfully solved the question of restoring the losses caused by constant overfishing, no matter whether the overfishing is in a trout stream a yard wide or in a lake like Huron. It has also in many a stream and lake placed fishes never known there before. In such States as Minnesota, Nebraska, North and South Dakota, Michigan and Wisconsin, the work of stocking and restocking is being increased yearly, and its value is day by day becoming more apparent.

To fully carry out the work so as to get the greatest benefit, all must not be left to the employees of the hatchery; the people must do their share, and without their assistance and co-operation it is but uphill work.

The hatcheries should be visited by the public as much as possible. All streams and lakes near, should be closely observed, the temperature taken in the warm months, the sources noted, the depth, width and nature of shores, fish at present there, etc. Such information if sent to the officer in charge of the nearest hatchery, with an application for suitable fry will be attended to and the information thankfully received. Different waters vary greatly in their characters and conditions, and fishes vary very much in their habits; therefore the successful stocking of waters requires much intelligent thought and experience. The planting must be followed by care and protection, and the repayment is pleasure of the use of your rod and a delicious addition to the table generally, at a time of year the farmer just relishes some change from bacon and salt meats. I trust the sportsmen and farmers over our great West will take an interest in this work, both for their own pleasure and profit, as well as to add one more attraction to the many we have to offer to the stranger from other lands; the trouble will be small in comparison with the benefit to be derived. Let them inform their representatives in Parliament that the work is a necessity and should be fostered, and to use their influence to that end, and thus benefit not only themselves but the country.

## C.—FOREST AND STREAM.

## SALMON FISHERIES OF ALASKA.

NEW YORK, 27th October, 1892.

Toward the close of the first session of the 52nd Congress the Senate directed the Commissioner of Fish and Fisheries to communicate to that body any information in his possession relative to salmon fishing in Alaska, its extent, and whether the methods of the fishery are likely to cause the diminution and eventual extermination of the salmon, together with his views as to the measures necessary for the protection of the fish and the permanence of the industry in Alaskan waters. In his report, transmitted in obedience to this resolution, the Commissioner discussed: 1. The origin and development of the fisheries. 2. The statistics. 3. The present condition. 4. The methods and apparatus employed. 5. The protective regulation of the fisheries, including recommendations as to further legislation in reference to them.

Appended to the report are papers by Dr. T. H. Bean, upon the life history of the salmon and the publications relating to the salmon of Alaska and adjacent waters.

The document is illustrated by a general view of the Karluk canneries, reproduced from a photograph made by Dr. Bean in 1889, and by 24 figures of the salmon, grayling, whitefish, trout, smelt and capelin of the territory.

This report taken in connection with an earlier one on the same subject, issued in 1890, completes the record of the Alaskan salmon industries to June of the present year. It shows that from 1883 to 1891 the yield of canned salmon was valued at \$11,000,000, and was obtained chiefly at Kodiak Island and the Alaska Peninsula. Over 4,000,000 of red salmon were taken in and near the mouth of a narrow river, only about 20 miles long, in the summer of 1889.

Without regard to the permanence of the industry, the canners pursued destructive methods of fishing, involving the absolute prevention of natural spawning in the rivers, until Congress imposed restrictions upon their operations and overproduction reduced the market value of salmon below a profitable limit. The combination of protective legislation and limitation by agreement among the canners has placed a temporary check upon excessive and destructive fishing.

Alaskan rivers contain five kinds of salmon—red, quinnat, silver, humpback, and dog—and four kinds of trout—Gairdner's, red-throated, lake trout and Dolly Varden. All of these are valuable food fishes, but some of them outrank the others for commercial purposes. The territory has additional wealth in its numerous whitefish, grayling, smelt, oulachon and caplin, bringing its aggregate of species of the salmon family as high as that of any other country of equal area.

The existence of the anadromous salmon is dependent upon their free access to their natural spawning grounds in the gravelly shoals of rapid rivers or in the cold, snow-fed lakes from which they flow, "and in this natural law is to be found the suggestion of such legislation as may be necessary 'to maintain the salmon fisheries under permanent conditions of production.'"

Protective regulation of the fisheries, in the opinion of the Commissioner, must provide for adequate reproduction of the salmon either by permitting the spawning fish to ascend to their breeding grounds or by artificial propagation and distribution of the young to their feeding places on a scale to compensate for the limitation of natural reproduction by the operation of the fisheries."

"If it be the policy of the Government to depend upon natural reproduction to maintain supply, this can be made effectual only by the enactment and enforcement of such regulation of the fisheries as will assure adequate reproduction under natural conditions. The different agencies which may be invoked, either separately or in conjunction, to accomplish this end are:



- (a) A weekly close season from Saturday evening to Monday morning.
- (b) A close season during September and October of each year.
- (c) The establishment of national salmon parks or salmon reservations, as proposed by Dr. Livingston Stone.
- (d) Absolute prohibition of the capture of salmon by the use of nets or other apparatus within 100 yards of the mouth of any river.
- (e) The prohibition of the use of more than one seine in the same seine berth.
- (f) The leasing of the privilege of taking salmon and the limitation of the catch, in accordance with the recommendation of the Commissioner of Fisheries, based upon continued and careful investigations of the conditions of the fisheries.

The establishment of national salmon parks was proposed in a paper read by Dr. Stone before the American Fisheries Society, and published in *Forest and Stream*, June 16, 1892.

The Commissioner believes that the future of the salmon can best be assured "by limiting the catch in each stream to its actual productive capacity under existing conditions, and by leasing the privileges of taking the salmon to the highest bidders." We cannot leave this important subject without again calling attention to the fact that the existence of the native population of Alaska is equally involved with the permanence of the salmon industry in the policy of the Government in dealing with fishery methods.

#### WHAT D. C. KNOWLES SAYS ABOUT TRAPPING SALMON.

D. C. Knowles, who owns land along Russian River for two miles, commencing a mile and a half above the mouth of the river, says that the number of salmon, or steelheads, reported to have been taken at the mouth of the river has been greatly exaggerated. He says that the bar at the mouth of the river was cut early in the season by the first high water, and thereafter, and for some time the river ran full. This gave incoming fish a chance to go up the smaller streams leading to the river, which were also full, and afforded very little opportunity for fishermen to trap them. If the water is low and they get into the river and are not able to enter the small streams, they remain in the fresh water at the mouth of the river, and great numbers can be trapped, but that was not the case this season. The fish wait off the mouth of the river for the opening of the channel, and as soon as it cuts through the bar they enter; if the stream is full and all the small streams running the fish go immediately into them and up so far as they can go to spawn. The first run of fish is always the heaviest, after that they come in greatly reduced numbers through January and into February, when they cease altogether. This year the fish were not delayed in the river and but few have been taken. Mr. Knowles says no gill-nets have been put entirely across the stream as has been reported, and for one day in the week no nets at all are set. He thinks as many fish come into Russian River now as ever came, and attributes the decrease of brook trout to the excessive summer fishing up the mountain streams rather than to the netting of the comparatively few fish taken at the mouth of the Russian River. At all events, this year but few have been caught, and the condition of the season gave the opportunity to stock all tributaries of the main stream, and if fish are not abundant in the next two or three seasons the cause can not be laid against the Russian River fishermen. There are not more than ten or twelve men engaged in the business, and at least four of them are Indians. The very largest number of fish caught to a net is 100 pounds, and often not more than four or five fish. So, says Mr. Knowles, all this talk about tons of fish being taken is not true.

#### PROTECT THE FOOD FISH.

The decline of our fishery resources has become so marked that strong measures are needed to restore them. The salmon has become so far reduced that this most

valuable food fish is certain to become extinct in a few years in California rivers unless a radical change is made. Trout have become extinct in many streams of the State, and in spite of a close season of five months the fish will disappear from the streams in which they are now found unless a better protection is afforded them.

There is no mystery about the cause of the decline of the salmon. It is found in the salmon canning factories on the banks of the California streams. The profits of the business multiplied their numbers till the slaughter of the fish was greater than the reproductive powers of nature. When the salmon began to decline in numbers the salmon canners, so far from protecting their future interests by limiting their catches, increased their efforts to take the fish that they might run at full capacity. The immediate profit of a full catch weighs stronger than the future existence of the industry. The efforts of the Government to preserve the industry by the hatchery stations on the McCloud River have only delayed the extinction of the fish. It has become increasingly difficult to secure spawn, and last year the slaughter was so merciless, and the efforts of the canneries to prevent fish from escaping to breeding grounds were so successful that only a few hundred thousand eggs were secured in place of the millions that were needed.

Radical measures should be taken to secure the supply of fish. It is a too valuable source of food supply to be allowed to perish when simple remedies can save it. All that is needed is to allow the salmon to breed without interruption for a few years. The canneries should shut down, the catch of fish for the markets limited to a part of the year, and the use of nets strictly regulated and limited. The *Mountain View Register* suggests that the canning of salmon should be prohibited for five years. This period is none too long to restore the ravages that the methods of canners have made. The *Register* likewise suggests that the protection of trout could best be secured by putting a heavy penalty on the possession of trout under six inches in length. This is a measure that would go far to keep up the supplies and prevent the fishing out of streams.

The legislature should devote some attention to this subject.



## D.—THE ARTIFICIAL PROPAGATION OF MARINE FOOD FISHES AND EDIBLE CRUSTACEANS.

BY REV. MOSES HARVEY, LL.D.

(*Read 1st June, 1892.*)

The art of pisciculture, in its modern restricted sense, commenced a century and a half ago with the discovery of an artificial method of fecundating and hatching the ova of fish. Fish-culture of a simple elementary character had been known and practised long before, indeed from a remote antiquity. This, however, does not appear to have gone further than the inclosing of fish in artificial aquariums, or in ponds where they were fed and tended till required for use. The art of acclimatization as regards fish, was understood to a limited extent. Favourite breeds of different kinds of fishes were fattened and flavoured in order to gratify the palates of epicures. The luxurious Romans spent enormous sums on their fish-ponds and oyster-beds. The ancient Egyptians are known to have reared fish in artificial inclosures on an extensive scale. If we may believe what is told us of the Chinese, it would appear that for many centuries fish culture of an ingenious kind has been carried on in China by collecting fructified fish eggs from lakes and rivers, carrying them to the interior, and selling them to proprietors of canals or ponds in which they are hatched and grow to maturity. The result is stated to be an abundant supply of fresh water food fishes in many portions of China.

With the discovery of the process of artificial fecundation of fish ova, pisciculture took a new departure, and by slow and painful steps has reached its present stage, which renders it an art of high national importance and gives promise of its becoming a potent factor in the future for securing sustenance for the teeming populations of the world.

As in the case of many other valuable discoveries, some doubt exists as to who is to be credited with the honour of this discovery. The French claim that Joseph Remy, a peasant of the Vosges, was the discoverer about the year 1842; and that with him originated that artificial system of fish-breeding which extended over their chief rivers, and at length culminated in the celebrated establishment of Huningue, near Bâle, for the collection, hatching and distribution of fish ova.

There can be little doubt that Remy's was an independent rediscovery, and that he carried it into a practical application which proved fruitful in results. He had been anticipated, however, by almost a century, by Ludwig Jacobi, of Westphalia, in Germany, who, about the year 1748, carried out successful experiments in breeding salmon and trout. For eighty years he and his sons carried on the enterprise, on his own estate, as a commercial speculation, with great success. He also wrote an elaborate essay on the art of fish-culture which attracted the attention of many scientific men. His discovery was the result of keen observation. He found that the fecundation of salmon ova was an external act that could be readily imitated by careful manipulation, and that by this method fish could be multiplied to an unlimited extent. To Jacobi, then, must be awarded the honour of first discovery.

There is little doubt, too, that in 1837, John Shaw, of Drumlanrig, Scotland, a forester of the Duke of Buccleuch, independently rediscovered the process. He had undertaken to prove that parrs were the young of salmon, and conducted a long series of experiments with this view, in the course of which he fecundated and hatched the eggs of salmon. He did not, however, go farther than to establish scientifically the principle involved, while Jacobi and Remy turned it to practical economic account. Shaw's experiments, however, were completed and reported to the Royal Society of Scotland before Remy's discovery.

To France, however, must be accorded the honour of erecting at Huningue the first fish-breeding establishment in which the art was turned to practical economic account, and its usefulness to the general interests fully established. The advantages of the artificial method, in the rapid multiplication of fish, and in the preservation of the ova and young fry from the destruction inevitable in the natural process, became speedily apparent. The Government of France speedily took the new discovery under its fostering care, and immediate and substantial success followed. The rivers and lakes of France were soon extensively cultivated, and fish-ponds of considerable extent were constructed. The system quickly spread over the whole continent of Europe, and everywhere aquaculture began to yield highly profitable returns.

About 1850 the fine breeding establishment of Stormontfield, on the River Tay, near Perth, commenced operations and was conducted with admirable skill and marked success. In the same year Norway embarked in the enterprise under government patronage. Three years later (1853) the United States entered on the work, and developed it with characteristic energy and on a scale previously unknown. In 1863, Canada commenced public fish-culture, and can now boast of possessing a thoroughly organized system, skilfully conducted on scientific principles, fully abreast of the age and yielding most satisfactory results.

The evolution of fish-culture has thus been a very slow process. Though almost coeval with civilization in its inception, it made no marked progress till Jacobi's discovery, in 1748; and afterwards it required a century before it attracted the attention of the world and received any general acceptance. Even now it encounters much opposition, and in many civilized countries is still regarded with such doubt and distrust that it makes little progress. This, however, is the fate of all new ideas which have to do battle with apathy, ignorance and self-interests, and the innate indisposition of men to leave the beaten paths. As a rule, mankind know not their benefactors, and regard all innovators as disguised enemies or open destructionists.

At first fish-culture was generally carried on as a private enterprise for individual profit. Gradually, however, its importance was discerned, and its promotion and control were, in some countries, assumed by the state for the benefit of the whole community. If lakes and rivers which were open to the public, and in which no one could claim the right of property, were to be stocked artificially, the work must be done, not by private enterprise, which was inadequate, but by governments, out of the public funds to which all contribute. Thus, fish culture on an extensive scale, with costly apparatus and a staff of officials and employees, became, in time, to be regarded as a function of the state. Scientific men and skilled experts could alone conduct operations successfully; and as these were performing a work which was designed for the benefit of a community at large, it was felt to be right that the cost should be met out of the public funds.

National fish-culture has thus obtained a recognized place, and is steadily advancing in most civilized countries. Water-farming may, in the near future, under the guidance of science, approach the dignity and importance which are now attached to the cultivation of the soil. Food-factories will no longer be confined to the land, but, at the bidding of science, the waters will "bring forth abundantly the moving creature that hath life," and with fresh emphasis the ancient precept will be repeated, "cast thy bread" (or seed) "upon the waters, thou shalt find it after many days."

The first efforts of fish-culturists were limited to fresh water food fishes, such as trout, or to the anadromous species such as the salmon. By far the most extensive operations were conducted in the artificial breeding of salmon as being a money-yielding fish of great commercial value. Strikingly successful results were reached, both in Europe and America, in restocking exhausted rivers with salmon, in keeping up the supply where heavy drafts threatened scarcity or depletion, and even in establishing fisheries in waters where salmon were previously unknown. Of course, due protection was combined with artificial breeding. Judicious legislative enactments were adopted to regulate the times and modes of fishing and to secure the removal of obstructions to the ascent of the fish to their spawning grounds. The salmon rivers of Scotland, such as the Tay, where salmon-culture has been carried on for many years, present the most striking instances of the value of artificial breeding; while the Doohullah Lakes in Ire-



land furnish an example of the creation of a valuable fishery by placing artificially bred salmon fry in waters where no salmon had been previously seen.

Similar successful results have been reached in many of the rivers of continental Europe. Still more remarkable have been the results of fish-culture on this side of the Atlantic. Every state in the Great Republic has now its Fishery Commission and numerous hatcheries with qualified experts in charge; while in connection with the United States Fishery Commission—a national institution—a band of scientific men devote their energies to the investigation of fish-life in all its varieties, and a study of the physics of the sea. The work accomplished by this commission has called forth the admiration of the civilized world. The founder—the late Professor Baird—a man of the highest attainments as a naturalist—has been succeeded by Colonel Marshall Macdonald, whose great ability and matchless zeal are admitted on all hands. The Canadian Department of Fisheries has accomplished a work only second to that of the United States Commission; and in the intelligent organization and guardianship of the fisheries, and the practical improvements it has introduced, it has shown what science and practical skill can do in the guidance of these great national industries. Under the veteran fish-culturist, Mr. S. Wilmot, a man of European reputation—Canadian pisciculture now compares not unfavourably with that of any other country.

In the United States fish-culture has been for years carried on in salmon, shad, alewives, whitefish and carp. In Canada the artificial propagation of salmon and of the valuable whitefish in the great lakes, has been conducted on a large scale and with successful results. Both the United States and Canada contribute to the maintenance of the highly valuable whitefish fishery of the great lakes by planting each year in their waters many millions of young fry. But for this artificial supply, the enormous drafts on this fish, by the fishermen of both countries, would long since have caused a decline which must ultimately lead to the extinction of an industry now employing thousands of men and a large fixed capital, and furnishing immense supplies of wholesome and agreeable food to an increasing population.

While the culture of fresh water fishes has thus been increasing in importance, a very striking advance in the art has been made in recent years, by extending its operations so as to embrace marine food fishes. It is needless to say that this enormously widens its field of operations and increases its prospects of usefulness to an unlimited extent. If the food fishes of the sea and edible crustaceans can be multiplied artificially, then we can imagine a time when the coastal waters will become great sea-farms, yielding enormous supplies of food for man, and even in the end approaching those of the land in value, and when salt and fresh waters everywhere will be cultivated with as much assiduity and skill as are now the continents and islands of the globe.

This is no mere flight of fancy. Keen-eyed science has taken the matter in hand, and is subjecting to her scrutiny the entire life-history of those finny tribes which can be made subservient to human necessities. Nothing escapes her observation. The minute eggs, transparent as crystal, and hardly discernible by the naked eye, which are cast into the waters in countless myriads, are patiently studied from the moment when the first movements of the mysterious principle of life begin, on through their phases of development till they reach the stage when they are able to "repeat the story of their birth." Science will not rest satisfied till the full biography of these nurslings of the sea is completed. Her investigations include not only their embryology, but their whole surroundings—their food, habits, migrations, their rate of growth, their friends and enemies, their birth and death-rates, as well as the physical condition of the waters in which they have their being. All the knowledge thus acquired is then to be applied practically, so as to guard them from injurious influences and destructive modes of capture; and above all, to the multiplication of their numbers and the restocking of exhausted waters, in cases where fisheries have ceased to be remunerative. Even the planting of maiden waters with new life-germs, and the improvement of breeds by crossing are within the scope of this new art.

Fish-culture has thus a wide range, and it is not unworthy the attention of the keenest scientific intellects. Its aim is noble—an extension of man's dominion over nature with a view to the increase of human resources and the food supplies of nations. As yet it is but in its infancy; but it gives promise of a vigorous growth. What it has

achieved is a pledge of what it is destined to accomplish. Of course it has its limitations, just as farming and stock-raising; and there are many difficulties and obstacles yet to be overcome. Now, however, that it has given proof that it can deal successfully with the great sea fisheries—such as those of the cod, herring, mackerel, haddock, as well as with the anadromous fishes and the more valuable crustaceans, it is difficult to set bounds to its possible achievements. Certainly no other art gives promise of such beneficial results, of a practical character, as fish-culture.

The honour of carrying fish-culture into this new domain must be awarded to the late Professor Baird, though experiments with the same object in view were commenced about the same time at Flodevig, Norway, as in the United States. Professor Baird, however, led the way on this side of the Atlantic; and he and his colleagues, after a long and patient struggle with obstacles and difficulties, won a brilliant victory, and demonstrated to the world that the food fishes of the sea were as amenable to control as the anadromous and fresh water fishes, and could be artificially multiplied to an indefinite extent. A vastly greater field of usefulness was thus thrown open to fish-culturists. Not only so, but Professor Baird was able to formulate the great law of fish-life on which the new departure rested, and thus to remove it from the region of empiricism, and give it a solid scientific foundation. This great law he stated in the following terms: "In regard to the sea-fisheries, one important principle should be carefully borne in mind, and that is that every fish that spawns on or near the shores has a definite relationship to a particular area of sea-bottom; or in other words, that as far as we can judge from experiment and observation, every fish returns, as nearly as possible, to its own birthplace to exercise the function of reproduction, and continues to do so, year after year, during the whole period of its existence. A second law equally as positive, with a great variety of fish, is that they pass from their spawning grounds to the sea by the shortest route that will take them out into the deeper waters where they spend the winter, and that coming and going to and from a given locality, they follow a determinate and definite line of migration."

Having established this important law by a long series of careful observations, Professor Baird deduced from it the following corollary: "The supply of fish in a given bay, or along a certain stretch of the coast, may be reduced to a considerable degree, and although it may be perfectly true that the sea is practically inexhaustible of its fish, yet when the fish of a particular region are cleaned out, there is no hope that others will come in from the surrounding localities to their places, since those already related to a given undisturbed area continue in that relationship, and have no inducement to change their ground. It should, therefore, be understood that the exhaustion of a local fishery is not like dipping water out of a bucket, where the vacancy is immediately filled from the surrounding body, but is more like taking lard out of a keg where there is space left that does not become occupied by anything else."

The latest and most advanced investigators of the biology of the sea strongly confirm Professor Baird's views, and establish the law which he expressed in the foregoing terms. More and more it becomes evident that the migrations of fish which spawn near the shore are of a limited character, being mainly from deep to shallow water and *vice versa*; that they are *local*, in the sense of "having a definite relationship to a particular area of sea-bottom," and that they return to the waters in which they had birth, and in which their early days were spent, to perform the most important function of their existence. The objection, therefore, so frequently raised, that it is useless to attempt stocking artificially an area of sea, whether in bays or coastal fishing-grounds, as the young fry will disappear in the wide ocean, falls to the ground. The notion that these fishes are wild ocean-rangers, constantly engaged in extensive migratory journeys, must be discarded. No doubt there are pelagic fish which spawn in the open sea, far from shore; but all, or nearly all our valuable food fishes are local. Hence, by artificial means, we can multiply their numbers in any given locality suited to their existence.

Another mistaken view must also be got rid of, namely, that exhausted fishing grounds have only to be allowed to remain unfished for a time and they will recuperate without any aid from man, by fresh arrivals from other localities. Experience has shown that fish in surrounding localities will not change their ground to fill up vacancies; but in obedience to the law of their existence, will continue in their own habitat. Without



artificial propagation therefore, when exhaustion is extreme, restoration is impossible; and even in cases where depletion is but partial, a long term of years is needed to secure improvement, which may be greatly shortened by artificial means. Besides, the question presents itself, what is to become of the fishermen while the fishing-grounds lie fallow? Scientific fish-culture presents the remedy by planting millions of young fry in the depleted waters, which, in a brief period, will restore the exhausted fisheries. This process can be continued, year after year; and even heavy drafts will fail to bring exhaustion, when the stock is in this way constantly replenished.

These are not mere unsupported theories. They have been amply sustained by the results which have attended the artificial hatching of codfish in the United States and Norway. The cod is the grand staple of marine industries on this side of the Atlantic. Many thousands of men and a vast amount of capital are employed in the cod-fisheries of North America, the annual returns being not less than twenty or thirty millions of dollars. During many years past this industry has shown serious symptoms of decline, especially on the coasts of New England. In many localities where cod were once abundant, they are now scarce or have altogether disappeared. Even the great cod-fisheries, such as those around the shores of Newfoundland, and at Lofoden in Norway, have, in recent years, presented signs of decline which must be regarded with feelings of apprehension in looking to the future. In view of these facts, the question, can science provide a remedy? presents itself with fresh emphasis.

In 1878, Professor Baird entered on a lengthened series of experiments designed to determine the practicability of the artificial propagation of cod on a large scale. In one of his earliest reports he remarked: "Whatever may be the importance of increasing the supply of salmon, it is trifling compared with the restoration of our exhausted cod-fisheries; and should these be brought back to their original condition, we shall find within a short time an increase of wealth on our shores, the amount of which it would be difficult to calculate."

Great difficulties were encountered in hatching the cod ova, but they were overcome; and after the experimental stage had been passed, Professor Baird was able to report that the feasibility of the artificial propagation of the cod family was fully established. "It is now," he said, "believed to be possible, not only to greatly increase the supply of the cod where it is at present found, but by carrying the young to new localities, to establish cod-fisheries so far south as the coast of North Carolina, where the fishermen may find regular occupation during the winter, now their poorest season in capturing these fish in large quantities, and supplying the adjacent markets, and even exporting them." At a later date he said, in reference to the artificial breeding of marine food fishes: "We have at our command the means of so improving and increasing the American fisheries as to obviate the necessity, in the future, of asking a participation in the inshore fisheries of the British provinces, and thus of enabling us to dispense with fishery treaties or fishery relations of any kind with the British or other governments."

The progress of the artificial breeding of marine food fishes since these words were written, proves that Professor Baird was not over-sanguine when thus prognosticating the future. The success of the Gloucester, Wood's Hall, and Ten Pound Island hatcheries is now a matter of history. Many millions of codfish have been hatched and "planted," and the benefit is already felt in the fishing grounds off Cape Ann, and at Nantucket Shoals, where we are told, on the best authority, "millions of these species, of one and two years' growth, are reported as being on the fishing grounds near the coast, while young cod have been taken in traps and otherwise, where the oldest fishermen have no recollection of seeing them before. The restocking of the shore grounds is proving a bonanza to the local fishermen, their catches being greatly increased." The shad fishery from Connecticut to North Carolina is reported to have increased twenty-five per cent in five years, in consequence of artificial propagation.

Not less remarkable has been the success of cod-hatching in Norway, where it was carried on in the Flodevig hatchery simultaneously with the work in the United States, and with equal skill and perseverance. In the spring of 1891, 620 litres of cod-spawn were dealt with, representing 279,000,000 eggs. At a part of the Norwegian coast between Sørnskill and Hambo, 166,500,000 cod-fry were planted, in addition to 26,000,000 in other places. From 1884 till 1890, there were hatched in all 140,000,000 ova. As a

consequence of these satisfactory results, the hatchery at Flodevig has been doubled in size, and a large pond has been constructed in which the cod are placed and allowed to spawn in the natural way, instead of undergoing the "stripping" process as formerly. The eggs when fertilized by contact with the milt in the pond, are skimmed off and placed in the hatching boxes. By this improved method, there is a gain of from twenty to forty per cent in the number of eggs hatched, the injury to the ova through handling the fish being avoided.

The confidence of the Norwegians in this method of increasing their sea-fisheries may be judged from the fact that this year (1892) they are engaged in the erection of another cod-hatchery at Dobak, sixteen miles from Christiania, sufficiently large to turn out four hundred millions of cod-fry annually. This is done with the view of restocking the Christiania Fiord, where there has been a great falling off of late in their number; and the supply of fresh cod to the markets of the capital and other towns on the Fiord, has been getting shorter every year, and the prices for codfish exceedingly high. In connection with this hatchery there will be erected a Biological station, where students from the University of Christiania will have an opportunity of studying, and of obtaining a practical and scientific knowledge of Ichthyology and Marine Biology, in all their branches, and where fresh specimens of marine fauna will be constantly on hand. This is not all. Another hatchery, with a fishing school attached, is in course of erection at Bodo, and will be in full operation in 1893. As Bodo is only a short distance (ten miles) from the Lofoden Islands, where the greatest of the Norwegian cod-fisheries is carried on in winter and early spring, it will be an easy matter to furnish the hatchery at Bodo with spawn from Lofoden, as all the fish caught there are spawning fish.

When we compare the work done in the United States, Canada and Norway, in connection with fish-culture and the improvement of the fisheries, with similar work in Great Britain, the contrast is surprising. In all matters relating to fish and fisheries, Britain is far behind the countries named. At one of the Fishery Conferences, during the London Exhibition of 1883, Professor Huxley remarked that "if they were going to deal seriously with the sea-fisheries" (of England) "and not let them take care of themselves, as they had done for the last thousand years or so, they had a very considerable job before them; and unless they put into their organization of fisheries, the energy, the ingenuity, the scientific knowledge and the practical skill which characterized Professor Baird and his assistants, their efforts were not likely to come to very much good." At the same conference, Mr. S. Wilmot, of the Canadian Department of Fisheries, expressed his surprise that "in a vast and intelligent country like Great Britain, the Government had not taken up this question of protecting, improving and advancing the interests of the fisheries." He was of opinion that this was a work rather for the State than for private persons, and he was supported in this view by Professor Brown Goode, the Director of the United States Exhibit.

It is no doubt true that in England, for years past, successive Fisheries Commissions have been appointed; but these have devoted their energies to taking the evidence of fishermen and others engaged in the fisheries, and embodying it in voluminous reports, from which nothing of a practical nature came. Professor Huxley, who took part in this work, in his inaugural address at the London Exhibition of 1883, expressed the astonishment he felt on discovering that fishermen know nothing about fish except the way to catch them. "In answer to questions," he remarked, "relating to the habits, the food and the propagation of fishes—points of fundamental importance in any attempt to regulate fisheries rationally—I usually met with vague and often absurd guesses in the place of positive knowledge."

Very different has been the method adopted in Norway, the United States and Canada. In Norway, instead of appointing a commission to take the evidence of fishermen, a body composed of four distinguished men of science was appointed to investigate the biology and physics of the sea; and on their reports was founded the organization of the fisheries which has led to such important results, and those experiments in the culture of marine food fishes which are yielding such abundant fruits. One brilliant outcome of this commission which has been carrying on its operations for more than twenty years, was Professor Sars' great discovery that the eggs of the cod, the haddock, the gurnard, and most food fishes with the exception of the herring, instead of resting on the bottom,



as had been previously universally believed, floated, in almost invisible globules, at or near the surface of the sea. The discovery laid the foundation of the scientific culture of marine food fishes.

In the United States, the same method was followed. A distinguished naturalist—Professor Baird—was, in 1871, placed at the head of a commission who wasted no time in taking the evidence of fishermen, but set to work on an investigation of the causes which had brought about a diminution of the commercial fishes and of the remedies adapted to remedy the evil. The result has been a thoroughly equipped department, with a large staff of scientific and skilled men, having the means of carrying on hatching operations on a large scale, both in fresh and salt water fish, and for studying the whole natural history of the various fishes. The splendid reports of this commission, issued annually since its commencement, are of inestimable value. Up till 1883, Congress and the various State Governments had appropriated over two and a quarter millions of dollars for the work of the Fishery Commission. Since that date there has been no diminution in the liberality with which the work has been sustained.

It would seem that at length Great Britain has been roused to the necessity of regulating and improving its fisheries on the same scientific lines as other countries. The inauguration of a Fishery Board for Scotland a few years ago, marked the commencement of a new era. Under such eminent naturalists as Dr. Wemyss Fulton, Secretary for scientific investigations, Professor McIntosh, LL.D., Mr. J. H. Fullerton and D. J. Beard, excellent work is done in the investigations of the life-history of the various food fishes, from which important results will follow. The Annual Reports of the Scottish Fisheries Board contain matter of profound interest to the scientific fish-culturist.

Last year, this Board decided on adopting the artificial breeding of valuable sea-fishes with a view to the improvement of the Scottish fisheries. They had been for some time closely observing the work carried on at Flodevig, Norway, in cod-hatching, and had received official reports from time to time. The issue was a resolution to take up the same enterprise. By an arrangement with Mr. Dannevig, manager of the Flodevig hatchery, a wooden building with a complete hatching apparatus, was constructed at Arendal, Norway, and has recently been shipped to Scotland, where it will be in operation before the end of the present year. The Governments of France, Russia, Italy and Belgium, have been in communication with Mr. Dannevig, with the view of procuring from him plans and directions for fitting up and working similar establishments; and it is possible that these countries will shortly have marine hatcheries in active operation.

England is at last moving in the same direction. At a conference held in the Fishmongers' Hall, London, in March last, the following resolution was unanimously adopted: "That this conference, in view of the diminution of food fishes, is of opinion that sea-fish hatcheries should be established, as in Norway, the United States, Canada and Newfoundland, for the purpose of increasing the fish supply; and that it is of the greatest importance to the fishing industry that marine laboratories should be established at suitable points round the coast of the United Kingdom, with a view of affording information to practical fishermen and others, regarding the habits and life-history of food fishes." At Liverpool a marine laboratory has been established, and another at Plymouth. Sir Edward Clarke, M.P., said, at this conference, that the Plymouth institution had shown that fish could be hatched in large numbers; and he thought that the Government would be doing a great public service if it assisted in establishing hatcheries, so as to produce results similar to those produced in America.

In France, M. Gobin, Minister of Fisheries, has recently expressed strong opinions as to the diminution of fish around the shores, brought about chiefly by the increase of populations, the larger and better equipped boats and the application of steam and trawls. He looks upon the artificial hatching of sea-fish as the best remedy, combined with the protection of areas as nurseries. The State alone, he thinks, can undertake such work, and he urges the establishment of hatcheries in which the propagation of sea-fish can be systematically carried on upon an extensive scale. Physical research, respecting marine and inland waters, is now extensively carried out in France, with a view to its practical application in the increase of fish by culture.

It is thus evident that the culture of sea-fish is established on a solid scientific foundation. The day is gone by for assailing it as insanity, and its advocates as wild, speculative enthusiasts. In all civilized countries having an interest in fisheries, scientific investigations are in progress; and the improvement, regulation and extension of these great industries are becoming more and more objects of national importance. England's colonies, one after another, are entering on the work.

Newfoundland, Britain's oldest colony, has been tardy in entering on the work of organizing and regulating its fisheries and employing artificial propagation for their improvement. This work, however, was at length commenced three years ago, by the appointment of a Fisheries Commission, who have already achieved a very gratifying measure of success, and are engaged in organizing a system which, in the future, cannot fail to secure beneficial results. Indeed, the work of the Newfoundland Fisheries Commission, as described in their annual reports, has already attracted attention on both sides of the Atlantic, and won the commendation of some of the foremost men who are engaged in similar work elsewhere. In one branch—the artificial propagation of lobsters—Newfoundland is ahead of all other countries. The method introduced by Mr. Adolph Nielsen—the able Superintendent of Fisheries—is likely to be adopted generally wherever it is found practicable. Cod-hatching too, though only two seasons in active operation, has made good progress, and gives promise of valuable results in restocking the partially exhausted bays and fishing grounds around the coast. It may also be mentioned that a pamphlet on “The cure of codfish and herrings,” drawn up by Mr. Nielsen and published by the commission, has been reprinted, by permission, by the Fisheries Department of Ireland, and widely circulated among Irish fishermen. The same work has been translated into French and circulated at St. Pierre and elsewhere.

Previously to the organization of a Fisheries Commission in Newfoundland, the fisheries had been left to take care of themselves. Naturally, these fisheries rank among the finest in the world; but reckless and destructive modes of fishing pursued by successive generations; the want of intelligent guardianship and legal protection; the absence of any definite knowledge of the fish and fisheries, based on scientific observations; and the utter neglect of any means of organizing and directing these great industries, at length resulted in an alarming decline of the cod-fishery, especially in the great bays and inshore fishing grounds, and a marked deterioration of the herring, salmon and lobster fisheries.

The present writer may mention, without egotism, that he took an active part, year after year, in pressing these matters on public attention, and urging the necessity of appointing a Fisheries Commission, under whose care the fisheries might be placed. The appointment took place in 1888, and he has acted as secretary up to the present time. Fortunately the services of an able Superintendent of Fisheries were secured in the person of Mr. Adolph Nielsen, formerly an inspector of Norwegian fisheries, a man of high character, and possessing a thorough scientific and practical acquaintance with all departments of fisheries. A brief account of the work done by this commission in the artificial propagation of codfish and lobsters may prove interesting as a further illustration of the topic under consideration.

At the outset, it may be well to notice an objection to the culture of sea-fishes which is often repeated. It is alleged that the most valuable of the sea fish—such as the cod—are so prolific that even the most destructive operations of man can make little or no impression on their numbers. The female cod, for example, according to size, yields from two to nine millions of eggs each season. The salmon deposits a thousand eggs for every pound of its live weight. The sole gives a million of ova annually; the flounder a million and a quarter; the mackerel half a million; the herring thirty-five thousand; the turbot fourteen millions, and a conger eel 28 lbs. in weight yields fifteen millions of eggs each season. The crustaceans are hardly less prolific than the finny tribes. An oyster gives birth annually to a number of eggs varying from half a million to a million. The female lobster yields from twelve thousand to twenty-five thousand ova each season. Crabs, periwinkles, mussels, have an amazing fecundity. Such being the case, it appears at first sight an absurdity to attempt to add, by artificial arrangements, to the population of the sea, when the natural rate of increase is so prodigious.



There is, however, another side to be heard from. The more extended the studies of naturalists regarding fish-life, the more apparent does it become that the waste and destruction constantly going on in the sea, of life in all its stages, from the spawn to the full-grown fish, is enormous. If nature produces with reckless prodigality, her destructive processes are on a corresponding scale. If there is no economy observed in the arrangements for the maintenance of life in the sea, neither are there bounds set to the destroying agencies. A silent war is ever raging in the ocean, and the slaughter is beyond all calculation. One race preys on another; and life can only be sustained by the destruction of some other form of life. In the great world of waters, with its shallows and its depths, its vast plains, its hills and mountain ranges, how marvellous the diversities of life! But there death and terror are ever raging, under the most placid surface. The inhabitants live

“A cold, sweet silver life, wrapped in round waves,  
Quickened with touches of transporting fear.”

The work of destruction ever goes on, not only through animated forms, but by the physical forces of nature. Birth and death follow each other in mysterious rhythm, even in the profoundest ocean depths:—

“Creator and destroyer, mighty Sea!  
That in thy still and solitary deep  
Dost at all being's base thy vigil keep,  
And nurtur'st serene and potently  
The slumbering roots of vast Creation's tree.  
The teeming swarms of life that swim and creep,  
But half aroused from the primordial sleep,  
All draw their evanescent breath from thee.  
The rock thou buildest and the fleeting cloud;  
Thy billows in eternal circuit rise  
Through nature's veins, with gentle might endowed;  
Throbbing in beast and flower in sweet disguise;  
In sounding currents roaming o'er the earth,  
They speed the ultimate pulse of death and birth.”

Let us take the eggs of the codfish as an illustration. These are thrown from the mother-fish into the sea by thousands of millions. They float on or near the surface in the form of minute transparent globes, exceedingly delicate and buoyant. They dance about in the upper waters, and are driven far and wide by winds and currents. Their tendency is ever towards the surface, so as to reach the vivifying influence of heat and light. What becomes of these enormous multitudes of delicate egg-globes, hardly perceptible to the naked eye? Vast numbers of them fail to come into contact with the milt of the male which is also thrown into the same waters, the act of impregnation being external. The eggs quickly perish unless they are touched by the vivifying male element. They require from three to five weeks to hatch after being fecundated. All this time they are floating near the surface, and countless myriads of them are thrown ashore by winds and currents, or carried out to sea where the conditions are far less favourable for either eggs or young fry, than in sheltered areas inshore. Meantime, fishes and sea-birds are devouring the eggs by millions, for to these enemies they are delicious morsels. When the young burst from the egg, their movements are impeded for the first ten days by the yolk-sack which they carry; so that they cannot escape from their enemies, and the mortality among these handicapped water-babies is inconceivable. Surrounded as they are by hungry foes, “the slaughter of the innocents” goes on incessantly.

The consequence is that notwithstanding the fecundity of the cod, its actual yield of mature fish is small. Only a small number of all that are cast into the sea survive to become full-grown codfish. It has been estimated by competent judges, that out of a million eggs only one mature cod will be produced.

It is not surprising then to find that when to this natural waste, man's destructive enginery is added, and vast numbers of the young are captured before they have reached the period of reproduction, as well as of the parent fish, even an abundant cod-fishery may begin to decline, and finally be ruined. This has actually occurred on the coasts of New England, and in many other countries. Man's destructive agencies turn nature's delicate balance, and decline and extinction follow.

Now here it is where the artificial process shows its value. Every sound egg taken from the fish in the hatcheries, is fertilized by bringing it into contact with the milt, and from fifty to eighty, or ninety per cent of the ova are hatched. The young are cared for and protected in their early feeble stage, and placed in the waters when able to take care of themselves; and thus their chances of survival are immensely increased. The cod being a local fish, the stock can thus be increased in any given area, and exhausted waters can be restored to former abundance.

If we take the herring, the mackerel, or the various species of flat fishes, we find the destruction of life among these is not less than among the cod tribes. The survival of one life germ, out of a quarter or half a million of those produced, so that it reaches the stage of maturity, is found to be the average in many species of the more prolific fish. If this were not the case, the waters of the ocean would have been long since over-populated, and life rendered impossible. Even in the case of the salmon, "the monarch of the brook," it has been computed by a high authority that the yearly yield of the largest salmon-producing river in the United Kingdom is about equal to the produce of one female fish of from 15 to 20 lbs. in weight, the produce of all the rest being lost or wasted. Sometimes an ill-timed freshet will destroy many millions of eggs, by tearing them from the gravel and laying them bare to a whole host of enemies.

It becomes apparent, therefore, that the argument against the artificial propagation of the valuable sea-fishes, on the ground of their superabundant fecundity, has no substantial foundation.

The cod-fisheries of Newfoundland furnish a striking illustration of the foregoing views in regard to the possibility of exhausting waters in which the fish-life was once superabundant. For three centuries and a half, the famous banks and the waters around the shores of the Island have been fished, mainly, but by no means exclusively, for cod. In regard to the Great Banks, those best qualified to judge are of opinion that the supply of codfish there is far from being so abundant as formerly, and that the decline, though slow, is steadily going on, even in this wonderful "Home of the codfish." However this may be, there is no room for doubt as to the falling off of the cod-fishery around the shores of the Island. The most convincing proof is the fact that though the population has doubled within fifty years, and the number of persons engaged in fishing has greatly increased, while the various contrivances for taking fish have been multiplied and rendered far more efficient, yet the quantity of codfish taken annually at present does not exceed that of forty or fifty years ago, when the primitive hook-and-line was the chief instrument of the fisherman. This decline holds good, especially in regard to the great bays, around whose shores a large population has gathered. There was a time when a fisherman could fill his boat in a few hours with fine cod within sight of his own door. Now the fish are so scarce that large numbers of the fishermen are compelled to resort to Labrador and other distant fishing grounds, at a great increase of toil and expense, the waters of their own bays being largely depleted. Conception Bay was formerly one of the best fishing localities, and the population there became dense. Very little fish comparatively is now taken in its waters, and there are no signs, from year to year, of any recuperation. Placentia, Trinity, Bonavista, Notre Dame Bays, and other fishing centres have also suffered, more or less, in the same way. The size of the fish, too, has diminished,—a sure sign of a declining fishery. Reckless, destructive methods of fishing, as well as overfishing and the extensive capture of immature fish, have combined in doing the mischief. No restraints were placed by law on the fishermen; and cupidity did not stop to consider the consequences in the future. Advancing depletion now threatens the shore fishery.

Such was the condition of affairs with which the Fisheries Commission, on their appointment, had to grapple. As a first step, they decided on the erection of a cod-hatchery, with the view of testing the practicability of restoring exhausted waters by artificial means. They considered that in those deep sheltered bays, with their arms running far inland, and the water possessing peculiar purity and salinity, they had very favourable conditions for hatching and rearing young cod. Dildo Island in Trinity Bay was selected as a site for the hatchery. The erection was on a large scale, and fitted up with all the recent improvements. It has capacity for hatching from two hundred and fifty to three hundred millions of cod-fry annually. If successful in Trinity Bay, cod-



hatching could be gradually extended around the Island, and its bays and fiords, with the inshore fishing grounds, converted into great codfish preserves. It was also decided that the artificial propagation of lobsters should be carried on simultaneously with that of codfish. In Newfoundland, as in every other country in which lobsters are taken, the fishery shows alarming symptoms of rapid decline which, if not arrested, must ere long end in the extermination of this valuable crustacean. Mr. Nielsen's invaluable invention of floating incubators for hatching lobsters rendered it practicable to carry on this process on a very large scale, and at many different places around the Island.

These hatching operations have been carried on during the summers of 1890 and 1891. One of the principal difficulties encountered has been the procuring of a sufficient number of ripe spawning fish to supply the hatchery with cod ova. The codfish around the eastern and northern shores of the Island spawn from the beginning of May till the end of July. The female codfish does not, like the salmon, accomplish the act of spawning at once. The eggs ripen gradually, and pass from the fish into the water as they mature, the period extending over six weeks. The spawners are kept in tanks in the hatchery, and at intervals are taken out and "stripped"; then returned to the tank. The milt of the male is poured over the eggs which are placed in a proper receptacle with a small quantity of water, and the fecundated ova are then placed in the hatchery jars in which, by an ingenious contrivance, the water pumped into a cistern from a depth of thirty feet, is constantly kept in gentle motion, the eggs floating near the surface. In a temperature of 40° Fahr. the embryo cod hatches, or breaks through the egg, in twenty or twenty-one days. A lower temperature will prolong the period of development and one which is higher will hasten it. When the young cod escapes from the enveloping membrane, the mouth, tongue and digestive organs are not fully developed; but the young fish is provided with a yolk-sack containing nutriment on which it subsists for ten or twelve days. The mouth and digestive organs are now fully formed so that the young fry can seek food for themselves and are liberated in the sea. From fifty to sixty per cent of the eggs treated in the hatchery are hatched. By the construction of a pond in which the fish will be allowed to spawn in the natural way, Mr. Nielsen expects to hatch from seventy to ninety per cent of the ova, so that his output for the season will be greatly increased.

The first season for hatching (1890) proved to be very unfavourable, owing to the presence of unusual quantities of ice around the coast, in consequence of which the cod were late in approaching the shores. Seventeen millions of cod were hatched and "planted" in the waters. During the second season forty millions were hatched successfully. A much larger output is anticipated in 1892. The fishermen reported in 1891 seeing immense numbers of young cod in the waters where formerly none were found. That these were the products of the hatchery can hardly be doubted. Two years more will be required to determine whether the grand object aimed at can be fully attained, as a codfish requires four years to reach maturity.

Lobster hatching is a totally different process. The eggs of the lobster are fecundated within the body of the female, and when extruded are fastened to the fibrils under the tail by a glutinous substance. She carries them with her till they are hatched. At the lobster factories, arrangements are made for collecting these eggs from the captured lobsters, placing them in floating incubators in which they are hatched and afterwards set free in the sea. During 1890, the immense number of 406,005,300 young lobsters were hatched and planted in the waters. In 1891, the number hatched was 551,469,880. It should be noted that but for this artificial process all these life-germs would have perished, as the lobsters are boiled before being packed. The effect of preserving and bringing them to life cannot fail to have a most beneficial effect in sustaining the stock of lobsters and averting the deterioration or destruction of a valuable fishery. The commission are satisfied that by combining it with a close season and a proper regulation of the openings in the lobster traps, so as to permit immature lobsters to escape, the future of the lobster fishery is assured. Canada is likely to adopt Mr. Nielsen's floating incubators, and in Scotland they are also introduced. Lieutenant Gordon, R.N., who is well acquainted with the lobster fishery, says in his report for 1890, in reference to the value of Mr. Nielsen's floating incubators:— 'Suppose the case of a cannery putting up 2,000 cases of lobsters, or 96,000 lbs., these require, say, a million lobsters to put up

and my inquiries show that probably one in five are 'berried' lobsters—say 100,000. Now take one-half of this and say that 50,000 'berried' lobsters, each carrying about 20,000 exuded eggs, were destroyed in putting up the 2,000 cases, we have no less than 1,000,000,000 ova destroyed, and if this rule be applied to the 220,000 cases which constituted the product of the fishery for the year 1889, we have a number of 110,000,000,000 as the wanton destruction of ova which it is possible, by the use of this simple means (Mr. Nielsen's incubators) to save, or at any rate, in some small measure; for even a saving of one per cent of such a total, represents a number the magnitude of which figures fail to bring home to the mind."

The propagation of codfish and lobsters is but a part of the work of the Fisheries Commission in Newfoundland. They diffuse information regarding the cure of codfish, the cure and packing of herrings; and construct and enforce rules and regulations for all the fisheries designed to protect and improve them, while they aim at maintaining a careful guardianship over the salmon rivers. In the herring fishery they have already accomplished an improvement which will be of immense value to the colony.

The remainder of this paper may be usefully occupied with some remarks on the development of the ova of the codfish and lobster, derived from observations at the Dildo hatchery.

The great majority of our marine food fishes deposit their eggs near the surface of the sea. These eggs are extremely buoyant, transparent as crystal, and, while in a living and healthy condition, will not sink. On the loss of their vitality, however, they sink to the bottom. The specific gravity of the cod ova is delicately adjusted to the salinity of the water. If the sea water on the surface becomes mixed with fresh water, as will occur after continuous heavy rains, the ova sink down until they meet water of a suitable salinity and density. When the fresh water has evaporated they will rise and float on the surface, their constant tendency being upwards, so as to come under the genial influence of the solar light and heat. These delicate little eggs have first to mature in the ovary of the mother-fish, and when ripened in this receptacle, the capsules which encompass them burst, and the ova are discharged into the water, looking like small transparent bubbles to the naked eye, and behaving in the sea just as soap-bubbles do in the air, dancing freely about when the water is agitated. The ripened milt of the male fish, containing the spermatozoa which are necessary to the impregnation of the egg, is discharged into the same waters and must come into contact with the ova before they can develop into fishes. It is marvellous to look upon one of these little transparent embryos of the cod as it bursts from the egg, barely visible to the naked eye, and weighing only the fraction of a grain, and to think that from it will be developed the lordly codfish, weighing forty, fifty or even sixty pounds. This growth takes place in three or four years, in which time it becomes perhaps half a million times weightier than at birth. It surpasses even the marvellous growth of the salmon which Frank Buckland considered to be the most rapidly increasing of all animals. He tells us that a salmon three days old is two grains in weight, and when it comes to maturity it may weigh thirty pounds and will then have increased 115,200 times the weight it had at first. But the cod surpasses this, starting from an embryo which is a mere fraction of the young salmon's weight.

The ovaries of the codfish are very largely developed, filling nearly the whole of the abdominal cavity. A very large cod has been known to contain nine millions of eggs. But it must be taken into account that these eggs are small, exceedingly delicate, and exposed to greater dangers during the course of development than the ova of fish which carry a smaller number. The latter are larger—as in the salmon—hardier and better protected. Hence it comes that, as a rule, the fish which carry a large number of ova are in reality less prolific than those which carry a much smaller number of eggs, as a much larger proportion of the latter survive to maturity. An enormous proportion of the cod ova perish from their extreme delicacy and minute size. For the same reason, the artificial hatching of cod ova is difficult, and requires very delicate manipulation.

When in the hatchery, the cod ova are to be fertilized artificially, the female is taken from the tank in which they are kept till ripen, and held over a vessel partially filled with pure sea-water, in such a position that the weight of the ovaries presses upon the canal. The ova then run freely into the water in the vessel, without any pressure on the



stomach of the fish. The male fish, having ripe milt, is then taken from the water and held over the vessel in a similar manner, till the required milt has mingled with the ova. The fish are put back into the well or tank as soon as "stripped," to await further ripening, the period over which the process goes on being five or six weeks. The water containing the ova and milt is then gently stirred and left standing until the spermatozoa have entered the micropyle, a minute opening in the membrane surrounding the eggs. Having entered the ova, the spermatozoa do not disappear into the yolk, but form from their head or nucleus, the male pronucleus which meets and fuses with the female pronucleus, as the germinal vesicle is termed. "Fertilization depends upon the conjugation of these two sexually differentiated nuclei." From this conjugation-nucleus, formed by the fusion of the male and female nuclei, the new being takes its origin. A single spermatozoon is capable of fertilizing an egg.

When thus fertilized the eggs are cleansed, measured, so to ascertain their number, and placed in the hatching apparatus for further development. The quantity of water, ova and milt must be duly proportioned to each other, in order to secure the fecundation of the egg.

After fertilization, the first development of the embryo commences by the process of segmentation. In an unimpregnated egg, the germinal layer which covers the yolk appears like a transparent substance containing numerous minute vesicles. When the process of impregnation first takes place the egg turns a dull colour, but speedily brightens again, and the numerous minute vesicles become larger but less numerous, because they become confluent and unite. One hour after impregnation the protoplasmic layer can be seen travelling in beaded streams towards the lower pole of the egg, where the germinal disk is forming. The first mysterious life-movements have begun. In water having a temperature of  $40^{\circ}$ , three hours are required before the germinal disk becomes defined, and the protoplast extending from it is seen to embrace the yolk.

About six hours after impregnation, the segmentation of the germinal disk can be seen, by the aid of a microscope, to have commenced; and the egg, which originally consisted of one cell, is divided into two cells, through the shortest or equatorial diameter. Segmentation advances gradually by the two first cells dividing themselves and forming four new ones. Each of these again divides into two, and thus a multitude of small cells come into existence. Twenty-four hours after impregnation, segmentation has advanced so far that the germinal disk is divided into fifteen cells, and the nucleus can be seen through the cells. In two days the process in the cleavage of the disk is still further advanced and about sixty new cells can be counted, forming four layers, one over the other. As the segmentation goes on the cells become by the fourth day more and more numerous, and the disk rises and assumes a convex form on the side pointing towards the yolk. After segmentation is completed, the disk sinks down and assumes a concave form, and is then termed the segmentation cavity, or embryonic disk or sack.

On the seventh day, the first indication of the embryo is defined in a thickened rim of the blastoderm, on the right-hand portion of the embryonic disk. On the eighth day the neural plate becomes visible, appearing like a cord lying across the egg, when viewed from below, and the embryonic sack has become more elongated.

On the ninth day, the head of the embryo is defined and appears like a thickening mass on the lower part of the ovum; and the cerebral, with indications of the optic vesicles, can also be seen forming at the sides of the head.

On the eleventh day, the first segment of the muscular system has appeared on each side of the neural canal, and the dorsal cord (notochord) can be seen below it. On the twelfth day the optic vesicles are seen more defined, while the muscular system and the notochord are more distinct.

When the embryo is fourteen days old the rudiments of the heart, pectoral fold, auditory canal and intestines can be seen. The stellated pigment cells are now also making their appearance.

On the fifteenth day, the heart appears like a spherical cavity surrounded with a wall of connected cells; the fore-brain is further developed, and the optic system more advanced. The primitive lateral fin-folds can now be observed. The embryo has grown considerably and is lying near the membrane of the egg in the shape of a half moon.

On the sixteenth day, the tail of the embryo cod becomes free and is twisted over to one side; the vent is also defined.

On the eighteenth day the heart is so well developed that it is seen to pulsate regularly, and the eyes are beginning to receive their colour. The pigment cells are also increasing in number, and the tail is now so well developed that it begins to straighten and move.

In water having a temperature of 40° Fahr. the embryo cod will hatch, or break through the egg, in twenty or twenty-one days after impregnation. It escapes by bursting its enveloping membrane with vigorous strokes of the tail. For a day or two previous, the imprisoned embryo has been showing by its constant movements that it was eager to enter on its new and freer life in the great world of waters. The tail is the weapon by which it effects its freedom and is usually pushed out first through the gaping opening. The body, with a yolk-sack hanging to its under side follows. The mouth and digestive organs are not yet formed; but the yolk-sack, which has been formed from the egg, and is large in proportion to the fish, contains deutoplasm, an albuminous substance, which furnishes its nutriment for the first ten or twelve days, until the mouth and digestive organs are developed and the young fish can seek food for itself.

The baby cod, thus liberated, at once makes attempts to swim; but its tail, for the first day after birth remains covered, and in consequence its movements are circular, and it spins round in spiral fashion. Soon, however, the tail straightens and it is able to swim right ahead, and is seen gamboling through the water, evidently in a state of enjoyment. Its sack of food, however, greatly interferes with its movements, and it is not till this is absorbed that it can swim swiftly. During this period the cod nurslings are kept in the hatchery, and only when they are able to swim vigorously are they liberated in the outside waters to commence the battle of life.

A high temperature of the water will hasten the development of the embryo, and a low temperature will retard it; so that the process from impregnation to birth may vary from ten to forty days in duration, according to the condition of the water.

There is no more amazing and interesting sight than the growth of the embryo, day after day, as viewed with the microscope through its crystalline envelope. Every organ is seen shaping itself, as if by some mystic rhythm, till the heart begins to pulsate and propel the blood to all parts of the body and build up the frame from the tiny speck of protoplasm to the bulky, voracious ranger of the sea. We can view it as "it is made in secret and curiously wrought in the lowest parts of the earth," its "substance yet being imperfect." What profound mysteries, too, lie behind all that the microscope can reveal and all that the eye of science can penetrate! The secret of life is as impenetrable as ever. The mysterious power that directs the movements of those molecules which shape the living creature and determine its destiny, who can pretend to define or fathom! "In Thy book were all my members written, which day by day were fashioned when as yet there was none of them." "Fearfully and wonderfully made," is true of every living creature.

In many points the ova of the lobster present a marked contrast to those of the codfish, and differ from them greatly in the mode of development. The cod ova, as we have seen, are impregnated in the water after they are extruded from the fish; the lobster ova are fecundated within the female before being extruded. The pairing of lobsters takes place after they have fully recovered from the process of shelling. During copulation the spermatozoa of the male are deposited, by its sexual organ, within the oviduct of the female, and there coming into contact with the ova fecundation is accomplished, and not till then are the eggs extruded. They are not, however, thrown into the water like the cod ova. They come from the oviduct covered with a glutinous substance which enables them to adhere to the swimmerets or fibrils underneath the tail. When in the act of spawning the lobster bends its tail forward, in order to catch the ova as they are extruded. The peculiar form of the tail, with its movable swimmerets, is admirably adapted to this purpose. This process of spawning is accomplished in the course of one day--furnishing another point of contrast to the codfish, which occupies several weeks is spawning.

The newly-spawned ova are of a uniform dark green colour, but become more and more transparent as the period of hatching approaches. They are carried by the lobster,



attached to the swimmerets until they hatch, the motion keeping them clean and promoting their development. The period that is occupied from the extrusion of the egg till the hatching takes place is nine months. During all this time the ova are carried under the tail, and protected from foes by the rapid motion of the mother if attacked. The powerful tail of the lobster enables it to shoot backwards through the water with extraordinary rapidity. Mr. Nielsen, when investigating the habits of the lobster, was able, on one occasion, to measure the distance it could go by a single stroke of its tail, and found it to be 25 feet, in less than a second.

The non-transparent character of the lobster ova, for several months after being extruded, renders it difficult or impossible to study the embryo in the living egg, during its first stages of development. When the larvæ break from the egg, all the organs are pretty well developed, with the exception of the claws, and can be distinguished through the transparent skin in which the body is enveloped. The young are not provided with any yolk-bag, but begin swimming about and feeding shortly after breaking from the egg. They are most voracious, and if kept in a confined place will devour each other, and fight till few remain alive. If, however, they are fed well, their cannibalistic, pugnacious tendencies are greatly lessened. In the hatchery they are fed on yolks of eggs, fresh fish liver, finely chopped meat of crabs and fish, and even flour. Their natural food, however, in this larval stage, is vegetable matter and minute animals found in aquatic plants.

When a week old, the young lobster has its first moult or casting of the skin, and a second when two weeks old. After another week it moults again and then the larval state is at an end. From this time its habits resemble more the grown lobster, and the large claws begin to develop and the shell to harden. After another week the lobster is completely developed. Another shelling process takes place, and the new shell becomes more and more like the colour of the natural lobster and increases in firmness. How often they shell after this period, during the first year, is not ascertained; neither is it known how often they shell during each year till they arrive at maturity; but as a 10-inch lobster is reckoned to be seven years old, they must in the first year shell more than once to reach that size.

The following figures show the number of ova which Mr. Nielsen counted on "berried" lobsters:—

Size.	No. of Ova.
10 inches.....	18,000
11 ".....	22,154
11½ ".....	22,600
12 ".....	23,080
12¼ ".....	23,264
12½ ".....	23,680
13 ".....	24,105
13½ ".....	24,606
14 ".....	25,000
14½ ".....	25,260
15 ".....	25,600

The 8-inch lobsters are not "berried." The European 9-inch lobster carries about 12,000 eggs. As a rule, in Newfoundland waters, lobsters are not mature under 10 inches.

In closing this paper the writer wishes to point out the desirability of establishing a Biological Station for the study of Ichthyology and Marine Biology in all their branches. This is a work for the Dominion of Canada whose fishing interests are so extensive, but, if established at some eligible locality on the shores of the Lower Provinces, such an institution would equally benefit the great fisheries of Newfoundland, and that colony might be expected to share in the expenses of its erection and working. The undertaking, however, should be national, and must be sustained from the funds of the State, as the whole community, directly or indirectly, would share in its benefits, and private liberality in new countries could not be expected to maintain an institution of this kind. The scientific and practical should be so combined as to render it a

Fishery School. It would include a laboratory in which the structure and habits of all kinds of marine life would be studied, especially the life, conditions, food, mode of propagation, movements, etc., of such fishes as possess an economic value. Observations would be conducted, not only on the fauna, but also on the flora of the sea, so as to improve and enlarge our Zoological and Botanical sciences, and impart accurate information to the young who might desire to investigate such subjects. Embryology would form a prominent feature at such a station. Practical instruction in the best modes of conducting fish-culture in all its branches would be given, and thus in such a school would be trained numbers of young men who would be qualified to take charge of hatcheries for the artificial propagation of both fresh and salt water fishes. At present the number of those who possess such qualifications is extremely limited, while the demand for their services is ever increasing. Classes of students from the Universities might profitably spend a few weeks each summer at such a Biological station, engaged in the study of marine life in particular, and in general, of the animal and vegetable resources of the sea. The national importance of such a training school will be evident at a glance.

The interests of pure biology, as a science, would be served by such an institution. The secrets of organic life are to be sought out best in the world of waters; and conflicting hypotheses regarding the origin and development of life are best proved or disproved by researches in sea areas. For modern investigations have shown that in variety of forms of life the sea is not less rich than the land. The fertility of the sea in fishes, crustacea, zoophytes, the lowest forms of sponge life, molluscs, etc., becomes more astonishing as researches are extended. In particular, the sea is the great magazine of invertebrate forms in which life is seen in its simplest shape, and here the student of invertebrate physiology must look for his materials. But all science, in the long run, will be found to have a practical bearing in some shape. And if we want to increase the quantities of our food fishes, our lobsters and oysters, all our operations must rest on a scientific foundation, and all our regulations of our fisheries must have their basis in a scientific study of fish-life. Failing such accurate knowledge, our legislation regarding the fisheries will be largely groping in the dark; and all efforts for their preservation and improvement will come short of the objects aimed at. A thorough knowledge of the mode of life, development, etc., of those fishes which constitute such a large portion of the national wealth of British North America, is essential to their preservation and the extension of these great industries.

Such a Biological station as is referred to need not in the beginning be on an extensive scale or very costly. When once commenced on a solid foundation, it would be sure to expand. In most civilized countries, laboratories for the study of marine fauna and flora are now established, and to these naturalists are resorting more and more as they find there ample materials for their studies and the best appliances. The finest establishment of the kind is that founded at Naples, some fifteen years ago, by a German biologist, Dr. Anthon Dohrn, which may now be regarded as an international institution, since it derives its support from all parts of the world, and is resorted to by students of all nationalities. In the United States laboratories are established at Wood's Hall, near Gloucester, at Beaufort by the Johns Hopkins University, and at Newport by Agassiz. France boasts of four, and Austria has one at Trieste. In 1884, the Marine Biological Association of the United Kingdom was formed, and the result has been the erection of a magnificent laboratory at Plymouth from which great results may be anticipated. Many of the leading scientific men of England are deeply interested in this institution and lend it their support. Scotland, too, since the establishment of its Fishery Board, has been doing excellent work in the scientific investigation of sea fishes. Such men as Dr. Wemyss Fulton, Professors McIntosh and Ewart, Mr. W. Anderson Smith, men of high scientific attainments, are doing admirable work in connection with the Fishery Board of Scotland, in prosecuting original investigations among the sea fauna; while they bring their knowledge to bear practically on the great fishing industries of Scotland.

One other feature of such a Biological station as has been referred to is the aid it would render in the collection of specimens which could be distributed among the various museums of the Dominion, thus enriching their treasures and placing materials for the



study of fish-life within the reach of all. At present the collection of such specimens, in the different museums, is reported to be very meagre and imperfect.

## APPENDIX.

The season for hatching at Dildo Hatchery, in 1892, closed 1st August. The total number of young codfish "planted" during the season by Mr. Nielsen was one hundred and sixty-five millions, being four times as many as in 1891, and nine times the output of 1890. This marked success has been partly owing to the construction of a salt water pond—an improvement introduced this year—in which the cod were allowed to spawn in the natural way, and the fertilized eggs were then syphoned into a proper receptacle, cleansed, measured, and placed in the hatching jars. The gain by this new method is 20 to 25 per cent in the number of ova hatched, and a considerable saving of labour. The pond is 60 feet in length, with an average breadth of 24 feet and a depth of 12 feet. It is capable of containing from 1,000 to 1,500 spawning codfish, which would give an average hatching of four hundred millions in the season.

In this pond it was noticed that when in the act of spawning the cod come to the surface, and the male turns on its back, the two touching each other and their vents coming together. This is different from the view hitherto held by naturalists as to the mode of spawning.

When the water was 42° or over the ova were hatched in 14 days. A week after hatching the young had absorbed their yolk-sack and were ready for planting. The pond is supplied with fresh sea-water pumped from a depth of 30 feet by a small "Eclipse" windmill supplied by Fairbanks & Morse, of Chicago.













